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PEST CONTROL

JULY 1955

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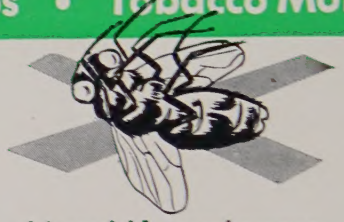

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Automation for PCOs

There's no end to the resourcefulness of our society's efforts to turn out more work in less time. Experts say we can expect a 30-hour week to be normal within the next decade. Machines are the cause. Automation they call it.

In a service industry like pest control where manpower is the biggest expense item, you've got to provide that manpower with the best tools available. Successful competition depends upon the utilization of efficient, up-to-date application equipment. The capital required is written off soon enough by the increased revenue automation produces.

New chemicals, new markets, increased public recognition of the specialized service PCOs offer emphasize the need for new and larger pieces of equipment, too. Volume applicators are the vehicles on which operators can ride into allied lines of community pest control.

Buying the equipment is the first step. Using it properly spells success from there on. If present equipment has seen better days, don't waste time constantly patching it up. Get the newer models with improved gaskets, shut-offs, pressure regulators, and corrosion-resistant metals.

For eight years *Pest Control* has been attempting to obtain care and maintenance information on the equipment PCOs use, but the limitations of generalities bogged down under the need for specific recommendations. No one article could do the subject justice. Our July issue is the answer — a special issue featuring suggestions on the kinds of equipment needed and how to take care of it.

Over a hundred experts have been contacted to prepare this number. Although it has been a year in the planning and probably still isn't perfect, it does contain the best advice and counsel available. Views expressed are those of the authors and do not necessarily reflect those of *Pest Control*, but the advice comes from key men among equipment manufacturers and distributors and from members of the pest control industry who have been willing to help you.

You may not agree with the types of equipment suggested or with the maintenance recommendations, or may have other ideas of your own. If so, let's hear from you. By this exchange of opinions all of us will learn what equipment is available and how to get the most out of it.

James A. Nelson

Editor

PEST CONTROL

EVERY MONTH SINCE 1933

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Editor

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Circulation Manager

KARL HASSLER
West Coast Representative

Volume 23 JULY 1955 No. 7

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Letters

Calif. Ag. Dept. On Imperial Khapra Beetle Fumigation Job

I have just had the opportunity of reading the most interesting and excellent article which appeared in your April 1955 issue ("Methyl Bromide Dooms Khapra Beetles," p. 22, discussing the warehouse fumigation in California for khapra beetles.

The instance covered was the first of a series of tests being carried out by the California Department of Agriculture looking toward complete suppression of this pest in California. The California Department of Agriculture paid the entire bill except for contributions of methyl bromide made by the Dow and Eston Chemical companies.

Work was planned and supervised in detail by Earle T. Gammon, Entomologist, Bureau of Entomology, State Department of Agriculture. Elmer Mayer, Insect Control Research, Agricultural Marketing Service, U. S. Department of Agriculture, represented that agency as a technician. Dr. Lindgren of the University of California and his assistants, helped in taking and reading gas samples during the period of exposure and in later evaluating these readings.

In discussing the dosage of methyl bromide used, your reporter seemed to feel that it was too high. He has presented figures through other channels showing that about one-third that amount had been found effective against grain storage pests. He may not have been aware that nearly twice the dosage is required where the khapra beetle is concerned, as compared with other known pest species. The effort in this instance was complete suppression. The dosages with which he is familiar were reported to have eradicated existing infestation in warehouses twice a year. In this test, the objective was complete suppression with a single application, and in view of the investment by the Department, the results had to be positive, which called for the higher dosage.

Part of the methyl bromide was introduced as a cold gas, not because of the temperature, but because of failure of the heating equipment together with insufficient equipment for that purpose supposed to have been furnished by the contractor. It was intended that all methyl bromide be introduced as a hot, completely volatilized gas. However, a concession had to be made in this case for the reason stated.

H. M. Armitage

Chief, Bureau of Entomology
State Department of Agriculture
Sacramento, California

Fogging for Sewer Roaches

The writer very much enjoyed reading Mr. Frank J. Von Zuben's article in the May issue of *Pest Control* ("Cockroaches in Municipal Sewers," p. 14), first, because it revealed some things that he, himself, had discovered, much to his surprise; and, secondly, because it leaves in the reader's mind the big question of "What to do about it?"

Todd Shipyards Corp. issued a release several years ago suggesing fogging as the only mechanical answer to attacking and cleaning out these pests from this most prolific source. This should answer the "What to do about it" question.

We will be glad to furnish a copy of this release to interested PCOs.

F. K. Steinrock

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Sticky fly ribbons, once used extensively in homes and commercial establishments before the age of aerosols and DDT, are now enjoying a new lease on life. Readers of *Pest Control* have been writing in to ask us where they can obtain the sticky paper.

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Pest Control welcomes expressions of opinions from its readers. Send ideas and comments as briefly as possible to James A. Nelson, Editor, Pest Control, 1900 Euclid Avenue, Cleveland 15, Ohio.

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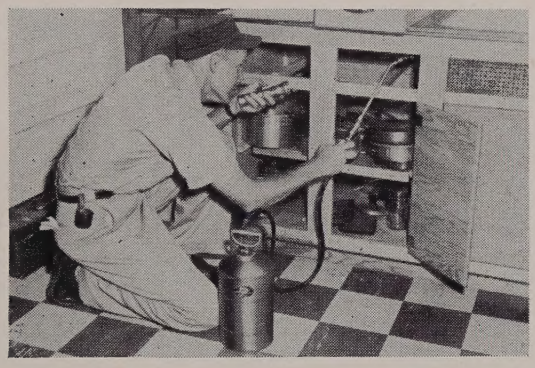

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An Equipment Issue At Last!

Each year advances made in pest control techniques aid operators in the endless skirmish against insects and rodents. Developments of new chemicals and better ways to apply old ones create new equipment needs, because without proper tools the best pesticides in the world are of little value.

Today, each phase of pest control is a specialized field in itself, each demanding specific equipment. There is little similarity between apparatus used in a fumigation job and that employed to curb flies and mosquitoes. And there is certainly no comparison between bird repelling devices and those which eliminate nuisance weeds and brush.

Here, for the first time, is an issue primarily devoted to pest control equipment. University, government and industry authorities throughout the nation have contributed their knowledge and talents to bring readers the up-to-the-minute practical suggestions, which start on this page, on equipment needed for safe, effective, economical operation.

Other experts have prepared articles on the care ond maintenance that gives equipment longer life and better field performance. You'll find these on pages 24 and 44. And, as an added frosting, there are three pages of photographs showing representative PCO equipment beginning on page 36. Make this issue a permanent part of your operating manual so you can always refer to it as a source for the best thinking in the country on pest control equipment.

Equipment PCOs Need

for

- **General Pest Control**
- **Rodent Control**
- **Termite Control**
- **Weed Control**
- **Bird Control**
- **Fumigation**
- **Area Fly & Mosquito Control**

General Pest Control

By JOHN V. OSMUN
Professor, Purdue University
Lafayette, Indiana

The equipment for general pest control could be quite minimal especially for someone just starting out in business or opening up new territory. It could consist only of a reliable small gallonage sprayer, a rodent control kit, and a flashlight. In the hands of a well-trained man, this equipment could do a great deal of good pest control, but other items are usually necessary in rendering broad, general service.

In choosing equipment, quality is more important than either quantity or variety, although the latter is desirable. Quality means not only good, durable construction, but good design for professional appearance. Improved marketing practices in service are just as important as those used in product sales. Carrying cases help improve appearance.

Small equipment usually consists of a compressed air sprayer of the one-gallon non-corrosive type, although one-half and two gallon sprayers have their place on certain jobs. Some people also use a one quart, hand-operated sprayer for spot follow-up work. However, it is the durable one gallon sprayer that must be considered the basic piece of equipment for general structural pest control.

Large scale spraying indoors usually requires power equipment. Several types are available and the choice is pretty much dependent on personal preference and mode of operation. One of the most versatile types is the electrically powered gear pump. This portable unit may have one or two discharge lines, and the various insecticides can be handled from any convenient container. Also on the market is a very useful and mobile electric compressor spray unit mounted on wheels. Either of these units may be used for residual spray applications such as mothproofing or fly control where considerable surface must be covered in a short time.

Outdoors, spray application is usually made with a gasoline motor driven hydraulic sprayer. The size depends entirely upon individual requirements. Lawn, shrub, and small tree spraying normally can be accomplished with the 15 gallon type. Larger gallonage sprayers may be needed for extended operations, especially in mosquito and fly control programs.

Many types of equipment are available for fine particle size dis-

persion of insecticides. These include: (1) high-volume lindane vaporizers for clean-out of such insects as brown-banded roaches and fleas; (2) electric atomizers and gas discharge bombs that disperse liquids in aerosol dimensions for fly and other exposed insect control; and (3) thermal aerosol generators for fogging inside and out.

Dust application is often necessary or desirable in general pest control for such things as fabric insect control and roach work. Hand dusters of the rubber bellows or bulb types are most often used and should be a part of every service kit.

Rodent control requires little application equipment as such, but the backbone of good service of this type is a well equipped kit. It consists of a presentable carrying case in which is stored prepared baits or bait ingredients, poisons, liquids, and mixing containers, along with rat and mouse traps for supplementary work. The equipment should be as compact as possible to minimize the hazard of handling poisons. Well-constructed bait stations are often required, too.

Certain secondary equipment is necessary for service work and is highly desirable in special situations. Dependable flashlights are first in this category, followed by drop lights, well-insulated extension cords, protective gloves and a good electric drill. When service personnel are exposed to mists and organic vapors, they need good respirators or gas masks equipped with the appropriate canisters.

Equipment for general pest control would not be complete without a vehicle to carry it in. Personal cars, with trailers as may be necessary, are acceptable, but station wagons or panel trucks are more professional and can be used in a greater variety of situations.

●

Area Fly and Mosquito Control

By GEORGE R. HAYES, JR.
Acting Chief, State Aids Section
Communicable Disease Center
Atlanta, Ga.

Equipment for area application of insecticides for fly and mosquito control is many and varied. Each has certain advantages and disadvantages. In selecting the equipment to be used, careful consideration should be given to all aspects of the available machines, and the final selection should be made in accordance with the needs to be served.

Adult flies and mosquitoes may be successfully attacked with equipment dispensing sprays, fogs, or dusts. Sprays are effectively produced by a number of machines of different manufacture, operating upon the principle of introducing insecticide solution or emulsion into a wind blast created by the machine. Particles which are within the size range usually most effective against flies and mosquitoes are produced and carried by this wind. These particles are heavy enough to provide satisfactory directional control by the operator and will settle well, resulting in good penetration and recovery even under conditions of moderate rising thermal and other air currents. A disadvantage of the system is the staining and spotting of automobiles, shrubbery, and other objects which have accidentally received a blast from the machine.

Fogs containing insecticidal materials may be induced either mechanically or by heat, the latter method being more common. Equipment is currently available utilizing the heat of engine exhausts, fuel burning chambers including pulse-jet generators, and steam fog generators. This type of equipment produces a spectacular fog with which the insecticidal material travels. Under favorable conditions of operation, very good penetration of foliage may be obtained. Use of these machines, when properly operated, usually will not result in the spotting of automobiles, shrubbery, and windows.

Fogs are considerably more critical than sprays in their requirements of calm to slight air movement and conditions of temperature inversion for good results. Thus, these machines generally should be operated at night. Insecticide particle sizes are usually considerably smaller than those obtained with spray machines and under certain conditions, for this reason, are less effective. Most fog machines can be operated to deliver particles of larger size, but much of the advantage of freedom from spotting is then lost.

In certain urban areas, the use of dusts for suppression of mosquitoes and domestic flies is considered very effective. Both ground power and aircraft dusting equipment can be employed.

For the application of residual sprays, the power spray machines and compressed air hand sprayers are most effective. These same pieces of equipment are most useful in work directed against the larvae of both flies and mosquitoes.

Aircraft equipped to dispense sprays and dusts are useful when large or inaccessible areas are to be treated. Control of mosquito adults and larvae and adult flies can be successfully accomplished by this means.

●

Rodent Control

By DORR D. GREEN
Chief, Branch of Predator & Rodent Control
U. S. Fish & Wildlife Service
Washington, D. C.

Control of house rats and mice requires relatively little equipment as compared to many other types of control jobs. Certain aspects of rodent control, however, require considerable equipment. For example, rat proofing calls for metal working and masonry, but those jobs are usually done by construction and repair workers rather than by PCOs.

Among the few equipment items ordinarily needed in rat and mouse control, bait stations are important, especially with the increasing trend toward use of anticoagulant poisons. There are several types of stations available, from light, attractively-colored, plastic devices suitable for use in homes, to heavy wood or metal boxes that will stand up under the rough conditions of a grain warehouse or mill. Any operator servicing both domestic and commercial premises will find it desirable to have at least two types on hand.

There are also several kinds of liquid bait dispensers, most of which are constructed on the principle of chick-watering fountains. Selection is largely a matter of personal choice, but it is probably advantageous to choose those with low rims since this kind encourages use by both rats and mice. Also small water evaporation surfaces reduce servicing costs.

Rat and mouse traps are, of course, standard equipment for anyone doing rodent control. The time-tested snap traps are generally used because of their simplicity and economy. Devices em-

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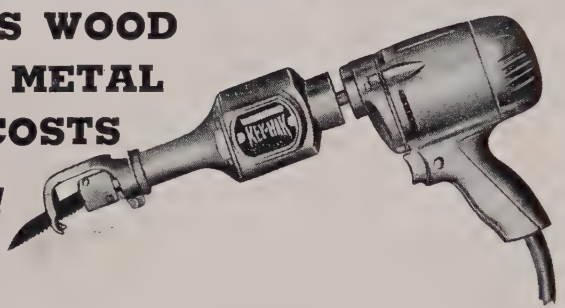

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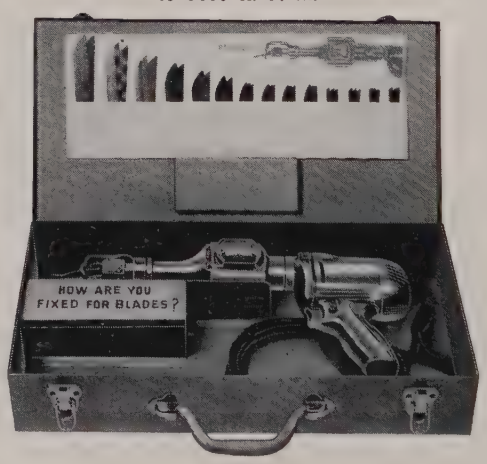

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ploying electronic, ultrasonic or other spectacular methods may be preferred by some operators, but are too bulky or expensive for most situations.

There is little need for spraying or dusting machinery in commensal rodent control, with the exception of foot pumps for putting calcium cyanide dust in rat burrows. This method of control is adapted to outdoor situations, such as treating burrows around the foundations of chicken houses, granaries and other places where there is no danger of introducing the dust into working or living quarters.

No equipment inventory is complete without inclusion of locked cabinets for storing poisons, locked chests or work kits to carry to and from the job, and rubber gloves, masks, and coveralls reserved for use only when handling highly poisonous materials. It is essential that all equipment used for poison be clean, labeled, used for no other purpose, and kept away from anyone not trained to handle poison.

•

Subterranean Termite Control

By H. R. ISHERWOOD

Service Engineer
Associated Sales & Supply Co.
St. Louis, Missouri

Equipment requirements for termite control are naturally governed by the type of construction, general conditions, and the volume of work being done. Another important factor entering into the picture is complications which the operator has to contend with in many structures, such as require excavating and structural modifications.

One of the most important factors in termite control is the knowledge of construction and know-how to make structural modifications and then to prepare the structure for the application of the chemical.

Many tools are necessary for structural modifications and repairs. For cutting off posts, partition walls, sections of sills, joists, etc., we recommend the Sawzall, a tool which is a complete unit in itself, and has saws for each specific purpose.

The air hammer seems to be best for breaking through concrete walls. However, there are certain electric hammers that will serve the purpose where the in-

PESTMASTER* MEANS DEATH for insects at every stage of life: eggs, larvae and adult. Deeply penetrating, odorless, non-corrosive and non-flammable, it can be used in all types of sealable buildings, storage bins, boxcars, warehouses, elevators and ships — penetrating into bags and packages therein.

Available in one-pound cans as well as in 10, 40, 50, 100, 150 and 400 pound cylinders, PESTMASTER* Methyl Bromide is easily applied directly from the original container. Aeration after fumigation removes all traces of the gas, and no residue of any type remains. It is effective in house fumigation, ridding the premises of drywood termites, vermin, rodents and common insects.

Fumigation manual with complete details on the many uses of PESTMASTER Methyl Bromide Fumigant is yours on request. Use the coupon below.*

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WON'T LEAK . . . tests show not a sign of seepage after 18 days! Specifications require 3 days.

STURDY AND SEAMLESS . . . one piece construction shaped under tons of pressure. Holds 3/5 fluid ounce.

BUILT-IN SAFETY . . . warning symbols of skull and cross bones, and "poison" printed all over it.

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vestment in air equipment would be too great.

For drilling mortar joints to reach voids and masonry walls, we recommend the ¼" electric drill with a speed under load of from 900 to 1,200 RPM, using ¼ or 5/16" carbide tipped drills. Remember, these drills are recommended only for the drilling of mortar joints, not concrete. For the air or electric hammer the carbide hammer bit is best.

For rodding soil we recommend a ¾" Hex rod with turning bar or handle. Its advantage over the round rod is that by turning the Hex rod you can enlarge hole so rod can be removed with less effort.

A pump unit run by either an electric or gasoline motor is best for applying chemicals. Use either a 1/3 HP electric motor or 1 HP gasoline engine with up to 100 pounds pressure. If the pressure is over 100 pounds employ the ½ HP electric motor or 1½-2 HP gasoline engine and a pump of a capacity not less than three gallons per minute.

There are pumps especially adapted for water solutions, others for oil solutions, and some for both. So, in the purchase of equipment it is important to bear in mind the chemicals you intend to use. The pump should be of the kind that is especially adapted to the chemical to be used, and which draws the chemical direct from the container with the proper relief valve, so that when the flow is cut off, the relief valve will open up to let the chemical flow back into the drum for agitation which is an important factor, especially in cold water solutions.

In the application of termite chemicals, pressure is **not** a governing factor. The application of chemical to trenches is merely a matter of flowing the chemicals into the trench, or rod holes, and mixing with the soil thoroughly. However, it is important that there be sufficient pressure to wash the earth off from the outside of the wall in the trench. We would recommend anywhere from 50-65 lbs. pressure.

For treatment of mortar voids, we recommend a needle point gun using from 75-85 lbs. pressure if the chemical is to be forced through drill hole openings. The needle point gun can be obtained with either a point fitting that goes in with a hammer or a ¼" nipple with a sliding hammer. The practical needle point to use is one that fits a ¼" coupling 4" in length with a 3/32" orifice, or not larger than 1/8".

One of the important tools to be used in connection with slab construction in homes, if the expansion joint under the baseboards gives sufficient clearance, is the right angle electric drill.

•

Pigeon Control

By JAY W. HUNDLEY
Enviromental Sanitation & Rodent Control
Health & Hospital Corp. of Marion County
Indianapolis, Indiana

Pigeons may be eradicated from an area by either poisoning or trapping. Since poisoning cannot generally be used because of city ordinances and public opinion this article will be confined to the types of equipment required for a trapping program.

The door or entrance through which pigeons are lured is the principal feature of a trap. Individual, free-swinging "bobs", are the most practical and successful. It is important that they swing upward easily and drop back smoothly into slots at the base of the door.

Traps may be of any size although the larger size is best for commercial use. We prefer a 4′ x 4′ x 8′ trap for our type of work.

It is important to place the trap in an inconspicuous spot near the pigeons' roosting place, where it is not apt to be molested. Always leave two birds in the trap for decoys. Place bait just inside trap door where the birds have to enter through "Bobs" to obtain a full feeding. Three parts of coarse cracked corn and one part of whole wheat kernels make a good bait under most conditions.

If the PCO desires to service the traps, the following equipment is necessary to handle the operation.

1. 5 gallon metal container; **2.** 12 gallon metal container; and **3.** A carrying case 10" high, 1′ wide, and 2′ long.

The metal container for carrying feed to bait the trap should not be over 5 gallon capacity due to the difficulty of transporting the weight over roofs. A metal can with lid, 12 gallon size, will easily accommodate 50 dead pigeons from the trap to the discarding area. The carrying case is

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Microsol 101 DeLuxe (new member of Microsol line) is a general purpose machine for use in home, store, factory, farm, dairy, etc. It makes an aerosol fog without using heat or steam, delivering 6 gallons of insecticide (or other liquid) per hour. Used with Pyrethrum, Pyrenone or Hydrogenated Rhotenone, the Microsol gives immediate control. Because of the fine particle break-up concentrated sprays are more effective and economical, ½ to 1 ounce is sufficient per 1000 cubic feet. Weighing but 9 lbs. and operating on 110-120 volts (AC-DC), it starts to function at the "Flick" of the switch.

Microsol Model 202 Heavy Duty — is the "work horse" of the portable models and designed for sustained operation, output capacity 8 gallons per hour. Weight 11½ lbs. 110-120 Volts (AC-DC)
Price $92.50

Microsol Model 202 DeLuxe — Stainless steel — Corrosion resistant. Designed for the dairy industry. Has 1 gallon stainless steel container. All components that contact the corrosive liquids are stainless steel, or otherwise treated to resist corrosion. Output capacity 8 gallons per hour. Weight 14 lbs. 110-120 Volts (AC-DC)
Price $119.50

Note: All above units can be furnished to operate on 32 — 64 — 125 — 160 and 220 volts. Prices are slightly higher.

Microsols are available for every purpose.

The models 303-T and 303-A, electrically operated are ideal for large indoor areas, such as warehouses.

For agriculture and mosquito control, there are two units, the models 304-D and the 403-D. Both of these machines are combination foggers, sprayers and dusters.

For complete specifications on any of the above, please see your dealer or write factory.

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used in areas where the public could observe destruction of the birds. Live birds are placed in the carrying case and removed to a secluded area for destruction. The case should have ¼" hardware cloth bottom and the side and top may be made of ¼" plywood.

Trapping is the best method of controlling the pigeon problem. The cost of a well developed program is not much more than a project where poison baits are used. The public will accept trapping more readily when properly educated.

Editor's Note: Illustrations of various types of bird traps similar to those described by Mr. Hundley will be found in the article by Dr. E. R. Kalmbach, "Pigeon, Sparrow and Starling Control," Pest Control, May and June 1954.

Other equipment for bird control includes the use of "grease guns" for applying bird-repellent compounds on ledges which many PCOs have found successful. Another method to keep buildings bird free is to install wire prongs on ledges, and some have employed electric shocking devices on places where birds rest. Most of these are more fully discussed in Dr. Kalmbach's two-part article of last year.

•

Fumigation For Dry Wood Termites

By FRANK THORNHILL
Neil A. Maclean Co., Inc.
Los Angeles, California

To accomplish smooth, efficient, effective and economical fumigation a great variety of small items and supplies must be on the job and readily available. No two fumigations are exactly alike in their requirements for equipment and tools.

The following list of equipment and supplies will be valuable as a check list:

Methyl Bromide: Allow at least one extra cylinder since valves stick and riser tubes break. A few one-pound cans are also very handy for the spots distant from central application points where diffusion may be uncertain.

Chloropicrin: For use where warning agent is desirable and useful.

Fumigant Measuring Devices: Platform scales and volumetric devices.

Heat Exchange Devices: For generating "hot gas" where such application is useful.

Gas Conveying Equipment: Hoses and tubing for both liquid and gas phase usage of suitable size, with fittings, connectors, and spare parts for field repair.

Fans & Circulating Devices: Several types and sizes of fan and blowing equipment are useful for purposes of evaporation, for attaining more rapid distribution and for ventilation at time of opening. Extension cords, connectors and repair parts should also be on hand.

Gas Enclosing and Sealing: Be sure you have tarpaulins, padding, patching, clips, ropes, burlap webbing, sand snakes and fastening devices. Also include laminated paper, masking tape, paper cutters, plastic spray, bug putty, flour paste, lath, nails, staplers and staples.

Safety and Test Equipment: For safe operations you should have a Halide test lamp with spare cylin-

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TO KILL RESISTANT FLIES . . . MALATHION is the efficient, low-cost way to kill flies, including those which have developed resistance to DDT and other chlorinated hydrocarbons. Quick-acting! *Up to three weeks residual*, depending on original infestation, general sanitation and weather. Malathion insecticides are formulated by well-known manufacturers under their own brand names. Easy to use as dry bait or as spray made from wettable powder or emulsifiable liquid.

TO KILL RATS . . . CYANOGAS® A-Dust is the ideal fumigant for effective, economical control of rats in burrows, city dumps, sanitary fills; under sidewalks, tight floors, pavements; along ditch banks and levees. Not a bait—CYANOGAS A-Dust liberates hydrocyanic acid gas in the burrow. Rats, adult and young, that breathe the gas die quickly. A-Dust is ready for instant use, requires no further preparation. Best applied with handy CYANOGAS FOOT PUMP. Method of application leaves no dangerous residues to be picked up by children or pets.

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AERO* HCN DISCOIDS, Fumigant, is the most generally used fumigant in the Pest Control industry. Simplifies job of fumigating dwellings, industrial buildings, railroad cars, ships, stored commodities. DISCOIDS are thin cellulosic discs saturated with commercially pure hydrocyanic acid, and are simply scattered from the can. No dirt or mess in application or clean-up. Especially suitable where insects and rodents are a problem in enclosed spaces.

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30 Rockefeller Plaza, New York 20, N. Y.

der and parts, or a Gow-Mac Gas Master, gas masks with extra canisters, danger signs, safety locks, and a first aid kit.

Tools and Miscellaneous: Other equipment useful on a fumigation job includes ladders, shovel, broom, bucket, wrenches, pliers, hammer, hack saw, wrecking bar, linoleum knife, wire splicers, steel wire, 100′ steel tape, electric plugs, and friction tape.

■

Weed and Lawn Insect Control

By LEE C. TRUMAN
Pest Control Services, Inc.
Indianapolis, Indiana

Equipment required for weed and lawn insect control is, generally speaking, larger than is usually found in the average pest control establishment.

While control of weeds and insects in lawns can be done with hand sprayers it is usually much easier to work with gasoline-driven equipment which has a larger tank capacity than most hand sprayers. It is quite possible to use one of the 15 gallon power driven sprayers with a pump capacity of about 3 gallons per minute, however this small tank capacity will require filling several times while treating an acre of lawn. It is normally better to have a tank of at least 150 gallons capacity with a minimum pump capacity of 4 gallons per minute in order to do lawn work. For larger industrial weed control, tank capacities up to 300 gallons and a pump capacity up to 15 gallons per minute are frequently used.

Measuring equipment for mixing solutions accurately is absolutely essential in weed control. Weed control, and some lawn insect control, is critical work in which an underdosage can do no good and an overdosage can do a great deal of harm. Uniform application is essential. In treating a lawn, any chemical must be put on evenly or the bad results will show visibly to your customer. All equipment should have a pressure gauge so that it can always operate at the same capacity.

The operator should, if it is at all possible, always use the same size hose and nozzle with which he is familiar. For extensive work, smaller hoses of 3/8″ inside diameter are much less fatiguing to the operator than are the larger diameter hoses, although any hose 3/8″ or larger is satisfactory.

Nozzles for this kind of application are generally of the coarse droplet size and can be either solid, hollow cone or fan type. Where the insecticide or weed killer being used is abrasive in nature, the operator should use only stainless steel or hardened tips in nozzles. Use of soft nozzles, such as brass, with abrasive materials will lead to a gradual enlarging of the nozzle opening so that it is quite easy to seriously overdose without the operator's knowledge.

Bindig Orkin Sales Manager

Alvin E. Bindig has been appointed sales manager for the Orkin Exterminating Co., Theodore Oser, vice president in charge of sales reports. Mr. Bindig formerly headed the firm's Orkin-Tox Division.

In his new position, Mr. Bindig will coordinate sales and sales promotion activities for all phases of the company's operations. Before joining Orkin he was employed as southeastern sales manager for the Sun Electric Corp.

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Made of vulcanized hard fibre. All steel frame. Metal bound corners. Varnished inside and out. The following sizes are usually in stock for immediate shipment:

Standard 18″ x 12″ x 7″

Round 25″ x 8½″ dia.
(For 3 gal. tank-type sprayer)

Special No. 3 18″x8″x10½″

SEE ILLUSTRATION, PAGE 11
IN NEW PCE CATALOG

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2 QT. RESIDUAL APPLICATOR

A lot of sprayer for the money. Chrome finished all brass tank. Easy to clean. Professional in appearance. Has top-mounted easy to read pressure gauge with unbreakable crystal. Easy top fill. Check valve prevents dripping or accidental discharge when extension is removed. ALL MECHANICAL SEALS WITH OIL AND CHEMICAL RESISTANT RINGS. Can be operated with one hand.

Also available with hose arrangement

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Where They Create A Nuisance

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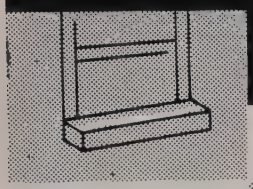
Prevents Pigeons and Starlings from Landing or Nesting Where Applied



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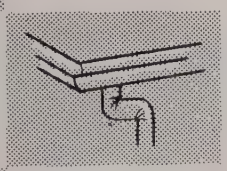

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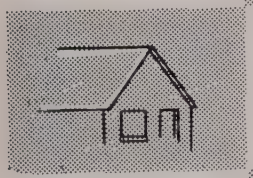

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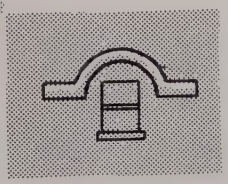

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Recognition of Insect Damage

by
PROFESSOR JOHN V. OSMUN
Purdue University

This third in a series of insect damage recognition articles by Purdue's John V. Osmun covers assaults on wood and wood products. In the first two installments the author took up injury to wool, fur and leather; and damage to fabrics and paper. When the pest responsible for the trouble is not around all you have to go on are signs of its handiwork. These photographs will help you review proper identification techniques. To use the key, first look at the kind of material injured, then refer to the appropriate section; second read over the various descriptions in that section until the pest which caused the damage is determined. This series will end with an installment in October on injury to stored food and medicinal products.

Section Three: **Wood And Wood Products**

1. Numerous small holes resembling those made by buckshot in surface of wood. If piece split open, many frass filled tunnels can be seen, most of them running with the grain ..... **Powder Post Beetles**
(Figure 17)

a. Exit holes 1/16-1/8″ in diameter. More advanced galleries running across the grain. Frass consists in part of distinct elongated or bun shaped pellets. In hard and soft woods ..... Family: **Anobiidae**

b. Exit holes vary from 1/8-3/8″ in diameter due to re-entrance as well as emergence of adult. Occasional tunnels going crosswise to the grain but majority with the grain. Fine or coarse frass which tends to stick together; few, if any, pellets. In hardwoods such as ash, oak, and hickory ..... Family: **Bostrichidae**

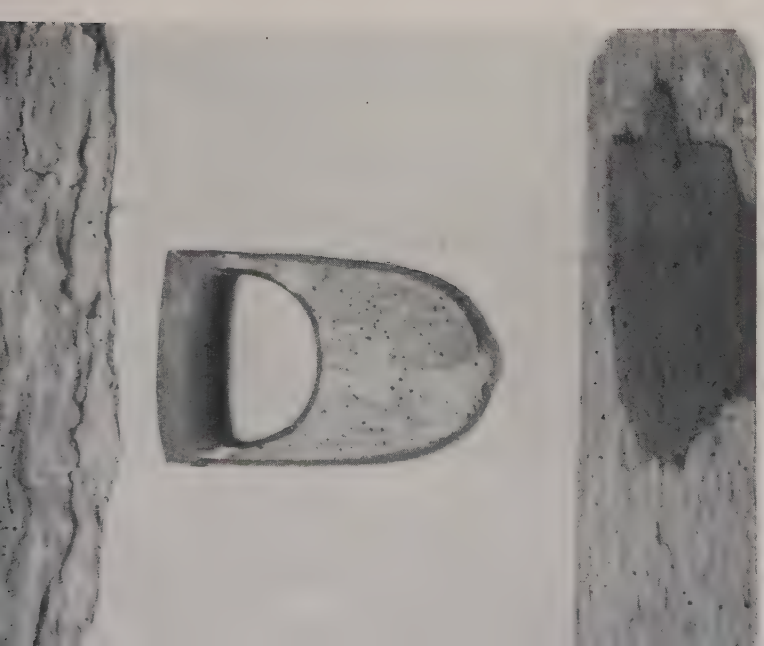
c. Exit holes 1/32-1/16″ in sapwood of hardwood lumber in not too old condition. (Common in poorly seasoned lumber). Frass abundant in tunnels but readily "powders-out." No pellets in powder ..... Family: **Lyctidae**

2. Occasional holes, round or elliptical, considerably larger in size than buck-shot. Irregular and rather extensive tunnels in the sapwood with usually coarse, packed frass ..... **Roundheaded or Longhorned Beetles**
(Figure 18)

a. If tunnels are greatly flattened and confined principally to wood directly under bark (lawn furniture, etc.), then ..... **Flatheaded Wood Boring Beetles**

Figure 17. Powder post beetle damage. From left to right: Anobiid, Lyctid, and Bostrichid.

Figure 18. Damage of **Old House Borer** (one of the longhorned beetles) in pine. Note oval exit holes in lower piece of wood. Galleries in other piece are packed with coarse sawdust.



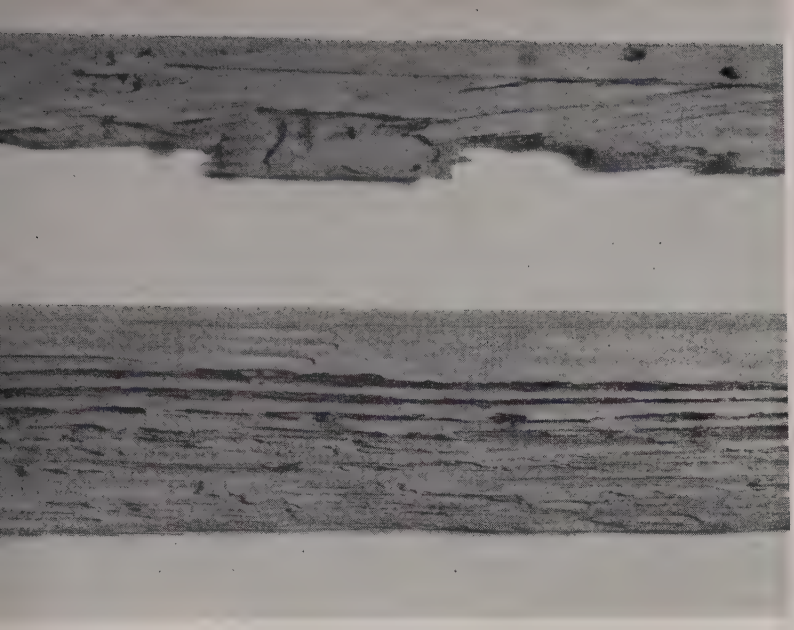


Figure 19. Typical **subterranean termite damage** in oak flooring, top, and a pine 2x4, bottom.

Figure 20. Dry wood termite damage. Exit holes and coarse pellets are typical.

3. No openings (or at best very seldom and then they are usually sealed over). Galleries extensive lengthwise usually in the springwood and packed with a hard, mastic-like frass. May infest many odd cellulose objects near or in contact with the soil ..... **Subterranean Termites**
(Figure 19)

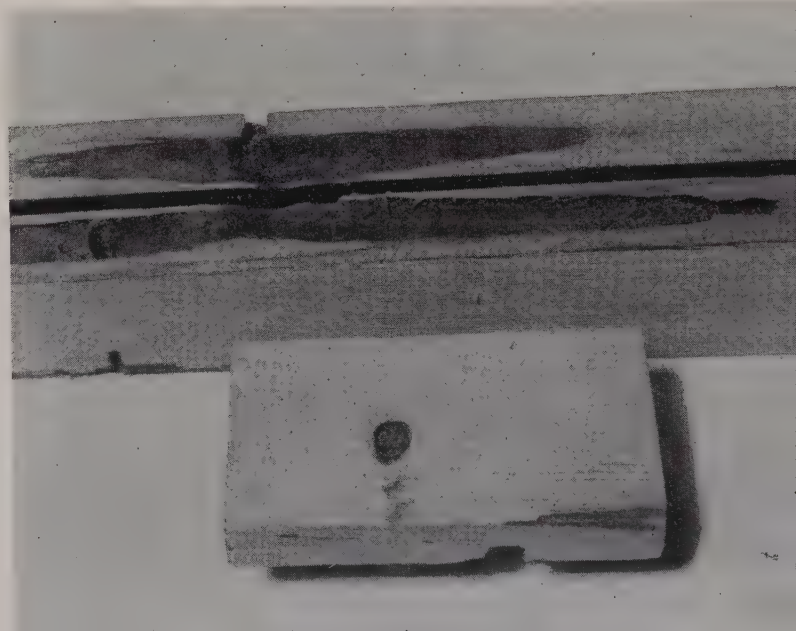
4. Wood with distinct round openings to outside; when split open, it reveals very thorough excavation. Galleries contain considerable coarse hard, sand-like frass, each pellet of which has rounded ends and six longitudinal depressions. No mastic-like frass or very fine powder..... **Dry Wood Termites**
(Figure 20)

5. Timbers with extensive galleries which are smooth, often with rounded edges, and containing **no** frass. Coarse saw-dust may be found near damage.. **Carpenter Ants**
(Figure 21)

6. Wood with 3/8-1/2″ round holes on side, edge, or end, leading into long tunnel (3-12 inches). If hole on side of wood, tunnel turns right angles and continues with the grain of the wood..... **Carpenter Bee**
(Figure 22)

Figure 21. Carpenter ant excavations are shown in this section through a 2x4.

Figure 22. Carpenter bee tunnel in wood. Upper board has been split lengthwise down the passage. Lower board shows characteristic openings to outside.



7. Elliptical holes 3/16-1/4″ in diameter, excavated from the **outside inward** to a depth of about 1 inch or less. Sometimes holes contain larval or pupal skins. In timbers usually near stored food products ..... **Cadelle**
(Figure 23)

8. Round holes 1/8-3/16″ in diameter, excavated from the outside straight inward. Depth varies from ½ to several inches. May contain pupae or cast skins. Holes often in end of grain ..... **Hide or Larder Beetle**
(Figure 24)

9. Wet or decayed timber with large irregular tunnels in the more sound portions of the wood ..... **Wharf Borers**
(Figure 25)

10. Pinholes and slender galleries in sapwood, frequently of southern yellow pine. The burrows and area around them stained dark by the action of fungi .....
Pinhole or Ambrosia Beetles
(Figure 26)

Figure 23. Cadelle larvae bored these holes in wood. Board is split to show depth of excavations.

Figure 24. Hide beetle larvae made these round holes shown in end view of board. (Slightly enlarged).

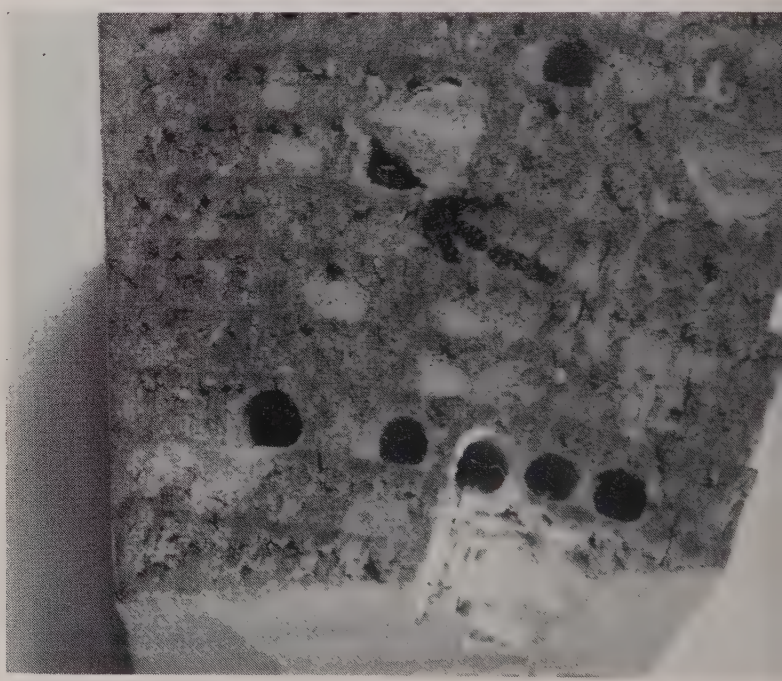
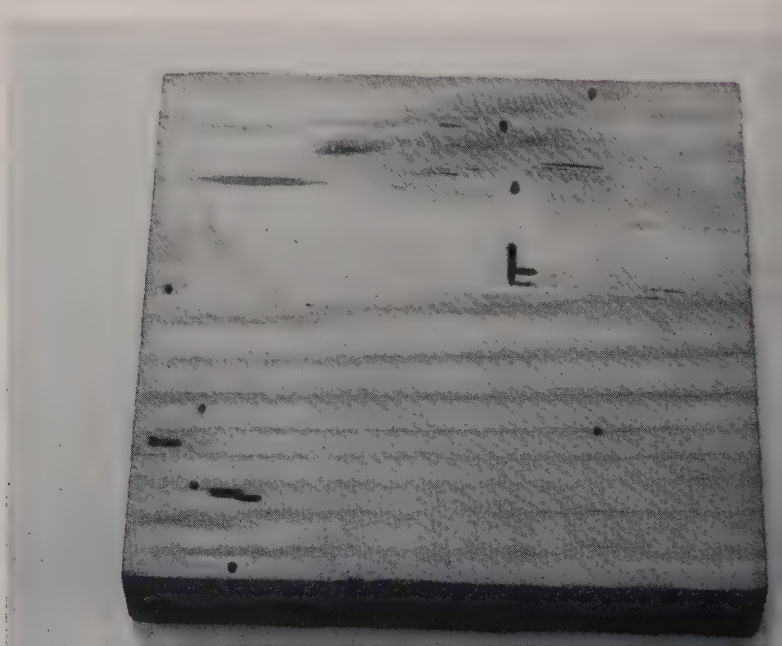


Figure 25. Wharf borer larvae caused this damage in moist, decaying wood.

Figure 26. Ambrosia beetle damage. Note darkened areas in wood caused by fungi staining. Holes are size of lead pencil.



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Save Time, Money
And Improve Service
By Following These
Experts' Advice On

Equipment Care and Maintenance

Portable Sprayers

By JACK BENMOSCHE
Pest Control Equipment Co.
Mount Vernon, N. Y.

It pays to buy good equipment and it pays to keep it in good condition. Frequently the quality of a sprayer can be determined by the ease and economy with which it can be maintained. Owing to the high cost of time lost in the event of equipment breakdown, sprayers which can be fixed on the job are preferable to those which cannot.

The proper care of almost any good sprayer can be summed-up in just a few words—cleaning and oiling. If you add to this the occasional replacement of washers, gaskets and worn-out or corroded parts, you have practically covered the field of equipment care in broad terms. Most manufacturers can supply replacement parts and you should have a supply on hand.

Aside from the seals at the openings in the top of the tank, which at most could require a new gasket, pressure-head sprayers have but three main parts or assemblies which may need occasional attention in the form of cleaning and oiling. These are the pump, nozzle, and shut-off valve.

Failure of the pump takes one of two forms; either it fails to get pressure into the tank, or having put it there, fails to keep it trapped. The former is corrected by oiling and flexing the leather cup washer which is attached to the pump plunger. The latter is corrected by cleaning or replacing the one-way check and spring at the bottom of the pump cylinder, referred to as the pump check and pump check spring.

Regardless of what brand of sprayer you have, there is one thing the shut-off valve of all sprayers have in common. They all have two seating surfaces which, when they are brought together, stop an opening through which material would flow if the two surfaces didn't come together to stop it.

The most common form of equipment failure is manifest in one of two ways; either it doesn't spray, or it doesn't stop spraying. If it doesn't spray at all, or does so with obvious lack of pressure, there is a good chance the strainer assembly is dirty. Use a bristle brush to clean it. If the sprayer does not stop spraying do not rush to take the nozzle apart. This seems to be the first impulse of the uninitiated, and is doomed to failure. Instead, take a look at the two seating surfaces in the shut-off valve. Maybe some dirt became lodged in between these surfaces and keeps them from coming together properly. Test the action of the lever to see the valve plunger springs back in a lively fashion when the lever has been squeezed. If it doesn't, the packing needs oiling. This is done by loosening the small hexagonal nut under the valve lever and putting a few drops of any lubricating oil under it and retightening this nut just enough to prevent leakage at that point. No wrenches should be needed for this. Finger-tight should be enough.

An improvement in the PCE Schrader valve consists of a new valve plunger, made of an acid-resistant, non-magnetic grade of stainless steel. One of these two seating surfaces is on this valve plunger. The other seating surface is a Koroseal Valve Seat Washer, which is not generally attacked by insecticides. If your sprayer fails to shut off completely, but drips from the nozzle, perhaps the valve plunger has corroded and needs replacing with one of the new type, which may never need replacing again.

Fix your equipment yourself if you can. If not send it back to your supplier.

•

Hydraulic Power Sprayers

By WILLIAM DICKISON
H. D. Hudson Manufacturing Co.
Chicago, Illinois

To assure length of life and usefulness of a power sprayer lubricate, as necessary, all working parts, and wipe away surplus lubricant to prevent the accumulation of harmful grit and dirt. Never put dirty water into the supply tank. After completing a spraying job, or when placing the sprayer in storage, rinse the tank, pump, and discharge with plenty of clean water and drain thoroughly.

In the daily maintenance of a power sprayer, remember the heart of the sprayer is the pump and that the safety valve, in all hydraulic pumps, is the pressure regulator. Like the circulatory system of individuals in which the pulse beat can reveal the proper functioning of the heart, likewise can the amount of spray liquid by-passed by the pressure regulator be a measure of the proper functioning or efficiency of the sprayer pump.

Periodic observations to note possible variations from the normal in the amount of liquid being by-passed by the pressure regulator to the supply tank, with the discharge line closed, can aid immeasurably in detecting otherwise unnoticed irregularities in

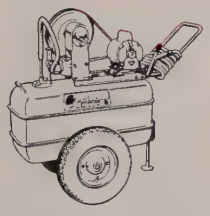
In these days of rising costs PCOs have to find some way to chop off unnecessary expenses. One way to stop forking-out needed cash is by proper care and maintenance of equipment. Here is authoritative counsel by suppliers and manufacturers on how to make equipment last longer and give the best possible service.

BUILD YOUR BUSINESS FASTER

with equipment that's designed right and made right by

John BEAN

"leaders in sprayers since 1883"



The SPARTAN — 25 or 15-gal. capacity; up to 300 lbs. pressure; positive agitation.

The SPRAY-PAL — 5-gal. tank capacity; 200 lbs. pressure; weighs only 90 lbs.

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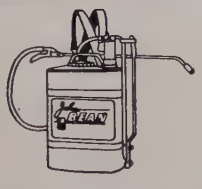

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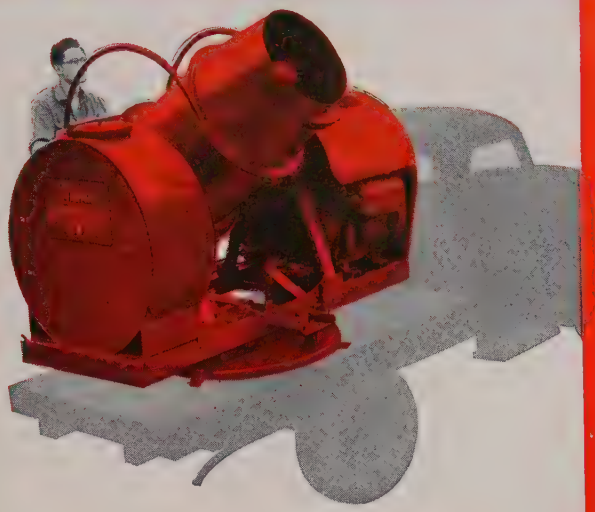

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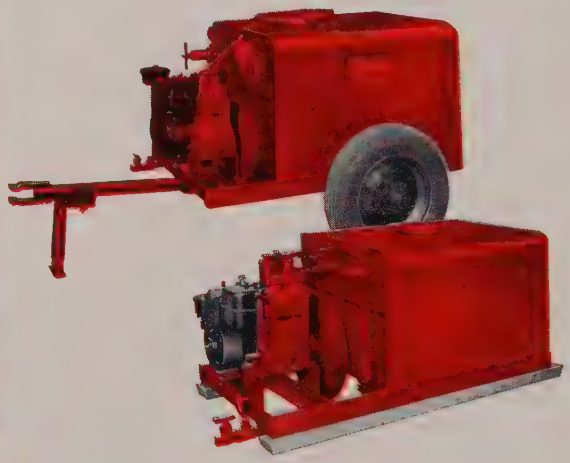
The Rotomist-75 gives you the greatest rate-of-work capacity ever developed in a mist sprayer of its size. Cuts spraying time as much as 80%. John Bean's exclusive axial flow fan discharges 19,000 cu. ft. of air per minute. Spray materials are delivered to the air stream at 400 pounds pressure. You get thorough coverage of all surfaces where flies and mosquitoes are troublesome. Try the Rotomist's smooth rotation and pivoting once and you'll be sold on its tried and proved design. 75-gallon tank; 25 h.p. engine; famous Royalette pump with lifetime Sapphite cylinders handles all spray materials.



RELIABLE HIGH-PRESSURE SPRAYING

with John BEAN's TRAILER and SKID-MOUNTED SPRAYERS

Pest control operators prefer these sprayers, because of the dependable, ***true high-pressure*** performance they deliver year in and year out, with little maintenance and a minimum of attention. Deliver 400 pounds pressure at either 4 GPM or 7 GPM, depending upon model. 50-, 100-, 150- or 200-gallon tanks.

fmc FOOD MACHINERY AND CHEMICAL CORPORATION

John BEAN LANSING 4, MICHIGAN SAN JOSE, CALIFORNIA

Division of Food Machinery and Chemical Corporation

the performance of a power sprayer. Such observations assist in the proper care and maintenance of a hydraulic power sprayer.

In the care and maintenance of a power sprayer, the manual of operation and maintenance, issued by the sprayer manufacturer, should always be carefully read and followed.

Tank Type Sprayers

By W. FLOYD KEEPERS
Secretary
National Sprayer & Duster Assn.
Chicago, Illinois

A few simple rules for the care and maintenance of tank type sprayers will pay off many times the slight amount of labor involved. While most operators know these rules, it is difficult to regularly follow a good maintenance program.

During sprayer operation check for leaks in the hose, at the nozzle, or at hose connections. Pesticidal materials are valuable, and leaky sprayers can be harmful, particularly around the home.

Most important rule and the one least often observed is to clean the sprayer after each period of use. Drain and flush the tank with clean water. Then disassemble the nozzles and strainers or screens and wash with gasoline or kerosene using a fibre brush or compressed air. Before reassembling, pump clear water through the circulatory system until it is clean. This whole process need not take more than 10-15 minutes.

Of almost equal importance is the periodic check-up, timed according to the amount of sprayer use, but never less than two to three times a year. Clean the tank. Disassemble and clean every part including pump, extension tube, nozzle parts and shut-off valve. Replace worn parts. Special kits are now available with common service parts for one sprayer, or there are larger kits to service a number of units.

Then reassemble and check hose and gaskets under pressure. Check pump and if it fails to develop pressure apply oil or graphite to the leather, if this material is used, and re-shape leather so it will seal securely.

A planned schedule, observing these few simple rules, will pay off in longer equipment life and more efficient operation.

Large Custom Sprayers

From information supplied by
H. G. INGERSON
John Bean Division
Food Machinery and Chemical Corp.
East Lansing, Michigan
and
C. W. DICK
Hardie Manufacturing Co.
Hudson, Michigan

Present day power sprayers are precision built and designed to give 10 or more years of good service if properly operated and maintained. Here are condensed suggestions for their proper operation and maintenance.

1. Be sure the sprayer operator reads and understands the operator's manual and that he operates and cares for the sprayer in accordance with the manual.

2. Regular lubrication is as essential in the operation of a sprayer as with a car, truck or tractor. Follow the manual. Distributor, generator and starter motor should be checked and oiled regularly.

3. Engine air cleaner should be cleaned in gasoline and oil reservoir refilled every day of operation. Remember, every bit of air consumed through the engine has to be filtered by the air cleaner.

4. Do not start a cold engine and immediately open throttle. Always idle engine for a period of time.

5. Keep the high pressure pump lubricated according to instructions. Remember the pump handles all kinds of abrasive and synthetic materials which have a deteriorating effect on the working parts with which they come in contact.

6. Ball and roller bearings, which are self-sealed, can be overlubricated. In case grease gun pressure breaks the seal, grease will leak from the bearing with consequent damage. This bearing should be greased strictly in accordance with instructions.

7. Most high pressure pumps are equipped with pressure regulators. To keep operation of the regulator free and accurate, lubricate the regulator stem and packing every 20 hours. If the regulator is the cup type, operating in a porcelain cylinder, keep well oiled, prolonging cup and cylinder life.

8. Pump 25 to 50 gallons of clean water through the sprayer at the end of each day's work. Daily washing of sprayer tank, pump, hose and nozzles is the easy and dependable way to avoid clogged pump valves and nozzles.

9. Keep sprayer tank full of clean water when not in use, except in freezing weather.

10. Be sure to drain pump and engine (if water cooled) whenever there is danger of freezing. Follow the manual in complete draining procedure.

11. Store spray hose in clean cool place. Clean nozzles and spray guns and oil working parts for storage.

12. Have engine and pump

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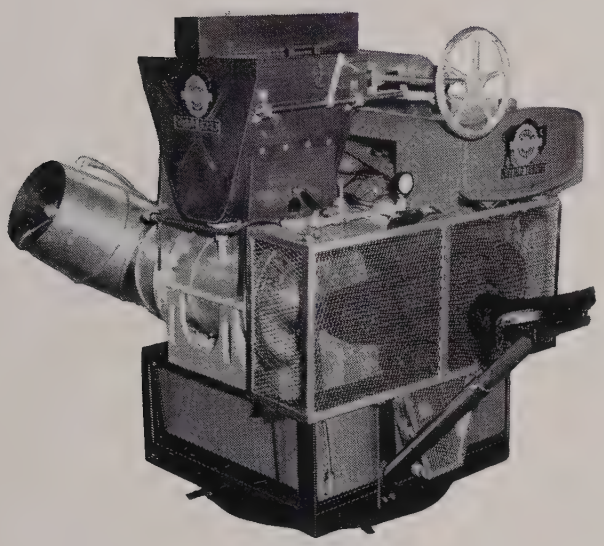
BUFFALO TURBINE—— has equipment for EVERY spraying operation

Buffalo Turbine mist sprayer - dusters are available for every type of spraying - dusting need. Municipalities and Forestry Departments use them for spraying shade and ornamental trees, mosquito and fly control. Farmers use them for orchard spraying, row-crop spraying-dusting and all forms of insect control.



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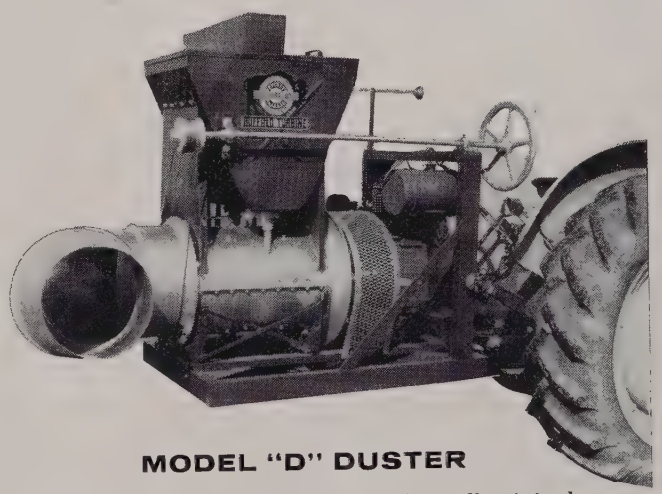

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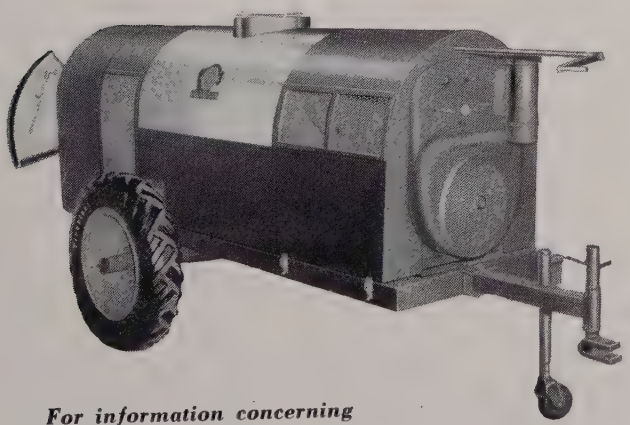

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checked by dealer's service department at end of each season to be sure everything is in condition for next season's use. If small replacement parts are needed, have them installed by dealer service department at this time.

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Pistol-Type Sprayers

By NORMAN LIBERMAN
Idico Products Co.
New York, N. Y.

Care and maintenance of the pistol-type sprayer is simple and there are only a few rules to follow.

If the sprayer does not start quickly the first time you use it, remove the nozzle and pull the trigger until all the air pockets are removed and the liquid is ejected from the unit.

It is necessary to keep the screen on the bottom of the intake tube clean at all times. When the fog nozzle becomes clogged, remove the nozzle and spiral insert and clean the spiral carefully. To clean the nozzle itself, hold it with the pointed end of the tip against the washer of the unit and flush out by pulling the sprayer trigger.

When the sprayer stops functioning (after prolonged idleness), it's a good idea to tap the casting of the unit sharply a few times, the reason being the ball check sometimes sticks in the sprayer due to the drying out of the liquid used. It may be advisable to remove and clean these ball checks at periodic intervals.

Occasionally it's a good idea to pump a little kerosene or light lubrication oil through the sprayer.

•

Solution Hose

By J. W. FISHER
President, Broadway Rubber Corp.
Louisville, Ky.

Rubber hose for carrying exterminators' solutions is a synthetic product and certain precautions must be exercised to correspond to the synthetic nature of the rubber, as well as the synthetic fabric.

Proper type compression sleeve couplings should be used and installed properly, great caution being exercised not to cut the tube of the hose so as to allow air to creep back in and separate the tube from the fabric at the coupling point.

Uniform working pressure should be used on the hose at all times if possible.

Avoid excess kinking or straining the hose under air pressure and quickly protect and repair any exterior breaks at the rubber cover before the hose breaks while on the job and causes damage to the surroundings, plus inconvenience to the operator.

At least once a week the hose should be cleaned out with light air pressure and blown completely clear of all foreign or left-over materials.

Keep the hose away from excessive heat or abnormal temperatures and do not store it in direct sunlight.

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V Carpenter Ants
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Spray Nozzles

By J. PELEJ
Spraying Systems Company
Bellwood, Illinois

A spray nozzle is a precision instrument. Considerable effort is expended to its proper design and manufacture to make certain it will give the best possible spray performance. This together with the user's own investment can be totally wasted by improper care and maintenance.

A basic maintenance program should be the daily systematic, thorough cleaning of all the component nozzle parts. Such a cleaning operation consists of rinsing with water and drying with compressed air. This should be done as soon as possible following the day's spraying operations and before the chemicals have had a chance to "cake-out" the nozzle surfaces.

Cleaning the orifice tip is very important. If it becomes clogged, outer surfaces of the orifice can be cleaned with a hard bristle brush such as a tooth brush. Inner orifice surfaces can be cleaned with a sharpened toothpick. Under no circumstances should a metal object such as a nail or needle be used, since it can mar the orifice causing a streaky spray and making the tip useless.

Nozzle strainer can be freed of foreign particles by flushing in a water stream or using a compressed air jet. Many operators carry spare strainer assemblies. When a strainer becomes clogged on the job, it can be replaced immediately with a clean one. The clogged strainer is cleaned later, after the day's operations.

A clean nozzle will do a better spraying job, faster. Keeping it clean will save time and money.

•

Fogging Machines

The Tifa

By JOSE MUSCARA
Todd Shipyards Corporation
Products Division
Brooklyn, N. Y.

Follow closely the manufacturer's instructions. This is the soundest way to **continue** to get the most out of any piece of equipment.

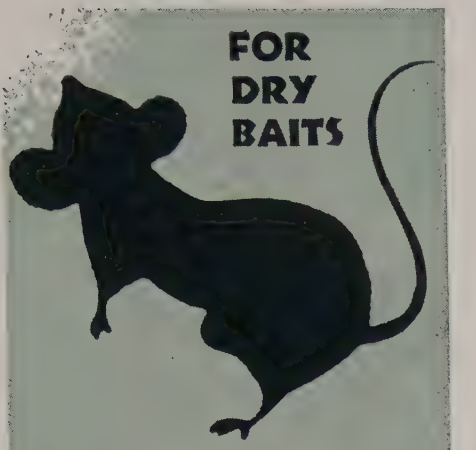
A typical section of the Tifa operating manual has the following to say on maintenance:

A thorough maintenance checkup every time engine oil is changed (time as recommended by manufacturer), will insure efficiency of operation. Check nuts, bolts and fittings since loose connections might affect the speed of the components.

Engine: Change oil as recommended in manufacturer's engine manual. AirMaze filter of engine (located on carburetor), must be washed in oil and allowed to drain off before attaching the intake. Clean periodically. Engine speed should be at 2450 R.P.M. (governor set at factory).

Blower: Check for belt slippage if lower than 1300 R.P.M. (when engine is at 2450 R.P.M.). Change oil (when engine oil is changed). Use S.A.F. No. 70. Air-intake screen must be kept clean at all times but do not brush when combustion chamber is on. Grease 2 Alemite fittings on shaft side of blower (when engine oil is changed).

Insecticide Pump: Check for



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More than just another rodenticide, Pival combines its effective killing power with three other and exclusive characteristics.

Tops in acceptability—on free feeding tests against a leading anti-coagulant rodenticide, Pival cereal baits have shown substantially greater acceptability — an important plus in achieving effective control.

Resistance to insect infestation — extensive laboratory tests of Pival's insecticidal action have demonstrated that, even under conditions of severe exposure, specially prepared Pival cereal baits are far less subject to insect infestation — an important plus in bait storage and in use.

Resistance to mold contamination— during large scale field application in both Louisiana and the Philippines, permanent bait stations exposed during the heat and humidity of full Summer remained completely free of mold. Laboratory tests prove the delaying action of Pival to mold contamination in cereal baits — another important plus to permanent baiting programs.

It is easy to see why large scale field usage has shown an unusually high degree of successful application of Pival cereal baits in the control of Norway rats, roof rats and house mice. Reorder now for the coming season.

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MOTOMCO, INC.
10 MURRAY ST., NEW YORK 7, N. Y.

belt slippage if lower than 1300 R.P.M. (when engine is at 2450 R.P.M.). Grease 2 Alemite fittings on top of pump (when engine oil is changed). If pump leaks, tighten gland nuts in unison while unit is running. Renew packing when necessary.

Fuel Pump: Check for belt slippage if lower than 1300 R.P.M. (when engine is at 2450 R.P.M.). Its capacity should be approximately 13 G.P.H.

Fuel Strainer: Strainer should be kept clean at all times.

In addition, the PCO must remember the solvents used in formulating a good many insecticides are also solvents, in varying degrees, for even the highly resistant synthetic rubber hoses. Such materials should be pumped and flushed out of the system at the conclusion of the day's work.

The Dyna-Fog

By E. H. HOSTETTLER

Curtis Automotive Devices, Inc.
Bedford, Indiana

If the PCO acquaints himself fully with the contents of the instruction manual on the Dyna-Fogs, and follows the simple maintenance procedures, very little major maintenance will be required for some time.

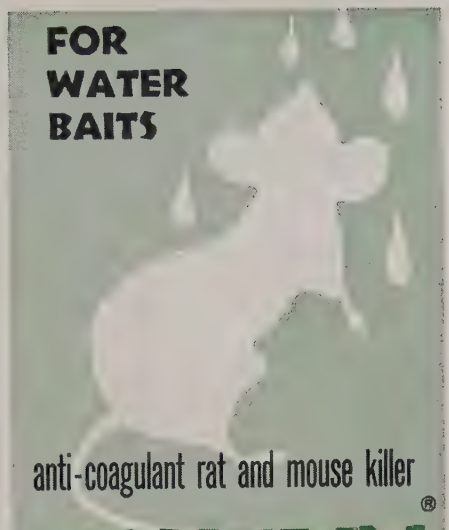
Since Dyna-Fogs employ the resonant pulse jet principle, which uses only one moving part, no lubrication is required because there are no rotating parts or bearings.

Here are suggestions on the care of the Dyna-Fog Sr.:

1. Replace petal valve and clean carbon from valve seating surface.
2. Clean engine tailpipe and pressurizing valve.
3. Use filter or strainer when filling fuel tank. Be sure fuel line does not become obstructed with any foreign matter.
4. Keep engine drain line open.
5. Clean formulation injector nozzle.

For proper maintenance of the Dyna-Fog Jr.:

1. Keep engine tube free of carbon.
2. Clean spark plugs for easy starting.
3. Strain fuel if used from open containers.
4. Clean formulation injection nozzle.
5. Make fuel adjustment, should



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Simple to use, it is packaged for the PCO as a 4.4% concentrate in convenient individual foil packets. One Pivalyn packet to one quart of water— that's all there is to it! As a "taste-treat" for rodents, and under conditions of difficult control, sugar may be added to the Pivalyn solutions.

Pivalyn's exclusive mold-resistant action provides excellent keeping qualities. Even with the sugar added (and laboratory tests have indicated as high as 10 to 1 acceptability over plain water by the addition of two tbsp. of sugar per quart), Pivalyn water baits normally remain mold-free for periods up to eleven weeks.

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BIG STINKY Outdoor Fly Traps lure, trap, and kill flies — and once a fly has entered Big Stinky, he cannot escape because of the trap's design.

BIG STINKY has become well known and has been well received in the pest control field. Use Big Stinky yourself and recommend it to your customers this season. It will mean a real help to you in accomplishing good fly control.

For information on network fly control with Big Stinky, Write:

DIOPTRON CO.
BOX 1313 (Unlucky for flies)
MILWAUKEE 1, WISCONSIN

mixture become too rich or too lean.

6. Check valve at neck formulation tank.

•

Respiratory Equipment

By EUGENE W. MERRY
Mine Safety Appliances Company
Pittsburgh, Penna.

It is especially important that respiratory protective equipment be properly maintained and stored. Adequate attention to cleaning and sanitizing is also required because the respiratory inlet coverings are worn on the face.

Inspection: All equipment should be inspected at regular intervals to make sure it is ready for use. All rubber parts such as facepieces, mouthpieces, exhalation valves, breathing tubes, and headbands should be inspected carefully for sign of deterioration such as hardening, checking or tackiness. During the inspection, time should be given to "working" the rubber between the fingers with a stretching and massaging action. This will reveal defects in rubber parts and prolong the life of non-defective parts.

Check metal parts for signs of corrosion and look over plastic and glass parts for breakage. Gas mask canisters should be replaced after one year from date of breaking seal, if not consumed before this time.

Cleaning and Sanitizing: Respiratory protective equipment should be cleaned and sanitized after every use in accordance with the manufacturer's recommended method that is best suited to his products.

In general, facepieces and mouthpieces made of rubber or rubber-like compounds can be cleaned with soap and lukewarm water by hand brushing or agitation in washing machines. For sanitizing, carbolic acid, hypochlorite, and quaternary ammonium compounds in the proper strength can be added to the wash water or used separately to disinfect the parts. (There are several combination cleaning and sanitizing materials in both liquid and powder form which contain soap or a detergent and quaternary ammonium salts). After cleaning and sanitizing, parts should be rinsed in clean water and dried,

(Continued on page 64)

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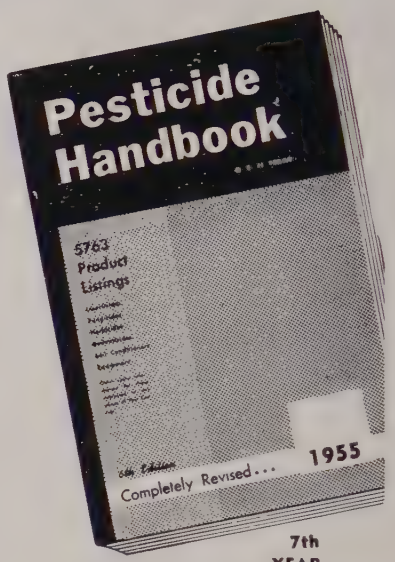

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about the editor —

Dr. Donald E. H. Frear, Editor of PESTICIDE HANDBOOK 1955, is one of the leading authorities on the chemistry of pesticides. He is the author of "Chemistry of Insecticides and Fungicides," the first book dealing with this subject published in the United States. In addition, he has written several other books, including "Chemistry of Insecticides, Fungicides, and Herbicides." Dr. Frear is Professor of Agricultural and Biological Chemistry at The Pennsylvania State University.

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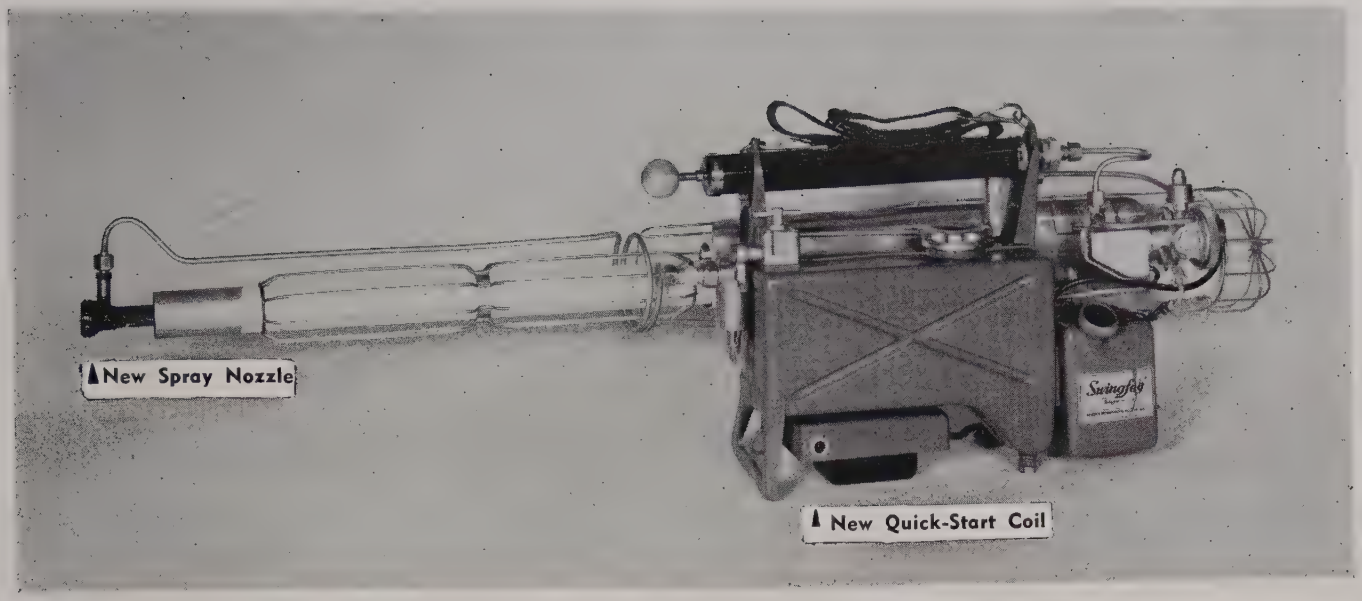

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The Fog-Air Company
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New York 17, New York

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Henry Steiner
901 N. Main
McAllen, Texas

Southern Mill Creek Products
4602 N. Dale Mabry Highway
Tampa, Florida

Residex Corporation
Foot of Centre Street
Newark, New Jersey

NPCA CONVENTION NEWS

National Pest Control Association
23rd Annual Convention
October 16-20, Denver, Colorado

•

Robert R. Schendel, National Chairman
Maurice Oser, Local Chairman

•

Views like these resplendent mountains await delegates to the NPCA's annual convention which this year will be held in Denver, Colorado, October 16-20, where trips amidst such beauties of nature will be part of the conference program. Can you identify peak in the background?

DENVER SCENERY WILL BE EXPLORED BY DELEGATES IN OCTOBER

4-Day Meet Equally Balances Business and Entertainment

At this early stage in the arrangements definite plans cannot be announced, but parts of the program, mostly on the entertainment side, have been booked for the 23rd annual National Pest Control Association convention to be held in Denver, Colorado, Oct. 16-20.

Headquarters will be the Cosmopolitan Hotel with over-flow delegates staying at the Brown Palace and Shirley-Savoy, all within a block's walking distance of each other.

Three major social events are already on tap. Monday night delegates tired after the first day of business, will revel in an old-fashioned western get together with refreshments. Tuesday afternoon and evening are set aside for a 100 mile tour through fabulous Central City, the quaint gold-mining town of pioneer days, and then on to Idaho Springs, famous for its healing radium hot springs, and beautiful Red Rocks Park. At six that night air-conditioned busses will have arrived at the Wolhurst Club where local convention chairman, Maurice Oser has arranged for a genuine Buffalo Barbecue and buffet supper. While conventioneers are letting the delicious western fare digest, they'll be sitting back to watch the "Dukes and Dames" Square Dancing group from Denver University. Once their colorful gymnastics are over and delegates are ready to be on the move again, they can pick their partners and dance the evening out beneath western skies.

For the Thursday night banquet, we've been promised there'll be a minimum of speech-making. After dinner, the world-famous Koshare Indians from La Junta, Colorado, will demonstrate their ancient tribal dances in full regalia.

Aside from these special events open to all registrants, the ladies will have their own program which so far includes a luncheon and fashion show at the "Top of the Park" of Denver's gorgeous Park Lane Hotel from where there is no more beautiful view of the Rocky Mountain ranges. Besides, there'll be visits to the Museum of Natural History, the U. S. Mint, and several other side-lights to please milady.

From all this festivity, don't assume the committee has been overlooking the informative business sessions that will occupy four morning and three afternoon periods. NPCA conventions are noted for their ability to bring attending industry members up-to-date on new developments as well as providing an opportunity to answer any questions they may have.

Subjects to be covered include rodent control, with a probable visit to the Fish & Wildlife Service's Wildlife Research Center just outside Denver, termite control, fly, mosquito and miscellaneous insect control problems. NPCA convention chairman, Robert Schendel, is working with the NPCA's New York office to obtain confirmation of already-invited government and industry experts before announcing speakers or topics.

The results of several new projects, including 3-D insect photography, the Serviceman's Handbook, and the association's public relations plans will be announced. New officers will be elected, too, so come prepared to support your candidate.

Wires are humming between Denver, Topeka and New York to get the most well-balanced, valuable program lined up, and next month on these pages, we'll bring you latest developments.

Lady Bugs To Revel

Ladies of the pest control industry who make up the auxiliary "Lady Bugs" group will have their own convention breakfast when they'll elect 1956 officers.

they got me, pal . . .

them **FLY FLAKES***

is moider!

kill 'em fast . . . and easy! FLY FLAKES kill flies in minutes • kill resistant strains • kill maggots • are economical to use • for dairy barns, feed rooms, poultry houses, manure piles, outside areas. Available in 1 lb. cans; 2, 5 and 10 lb. bags, and 25 lb. drums.

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Insecticides Division

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DOW

Announcing a major development in the fumigation of bulk grains . . .

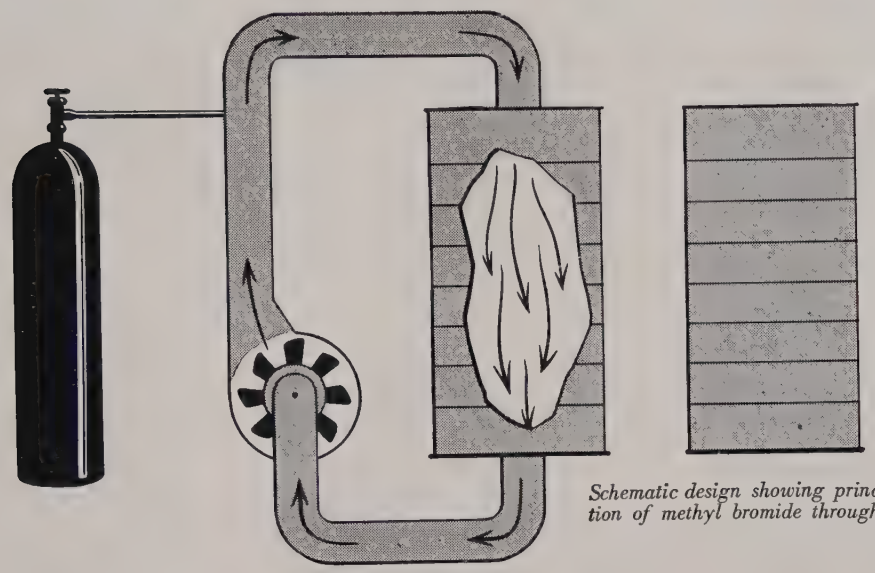
QUICK! UNIFORM! SURE! CUTS MATERIAL COSTS 50%

It is now possible to fumigate grain with methyl bromide in silo-type grain elevators.

Dow's new forced recirculation method enables the operator to send an even flow of methyl bromide air mixture through the grain mass at a given rate per bushel per minute. The new process is quick, uniform, sure. It takes the guesswork out of grain fumigation because it is *engineered* to make fumigation of bulk commodities an exact science. Controlled distribution of methyl bromide means lower dosages . . . *cuts material cost at least 50 per cent* . . . and results in a complete kill of all insect life in the bin.

Dow was the first fumigant manufacturer to work on this important new process. We have tested the forced recirculation method using methyl bromide in many types of installations for more than seven years. As a result, Dow is an authoritative source of information and technical assistance. This is a major development in the fumigation of grains and should also have application in the fumigation of peanuts, popcorn and other materials stored in bulk . . . a profitable new service tool for *you*. Our tests have proved conclusively that when the installation is properly engineered and the amounts of methyl bromide are correct—*there is no question about results.*

NEW FORCED AIR RECIRCULATION PROCESS DISTRIBUTES DOW METHYL BROMIDE UNIFORMLY THROUGHOUT THE BIN ... ELIMINATES GUESSWORK



Schematic design showing principle of recirculation of methyl bromide through silo bin.

ENGINEERING SERVICE IS AVAILABLE

Roughly, the new method involves a permanent or semi-permanent installation for the recirculation of lethal concentrations of methyl bromide throughout the grain mass. We have adapted the process to both silo-type storages and to bulk shipments of grain under quarantine in freight cars. This important new method is now ready to help you give your stored commodity accounts maximum fumigation effectiveness. You are invited to take advantage of Dow's engineering service on the installation of recirculation equipment utilizing methyl bromide. A Dow fumigation technician will gladly accompany you to your clients' storage facilities for consultation and assistance. Write our Fumigant Sales Section. THE DOW CHEMICAL COMPANY, Midland, Michigan.

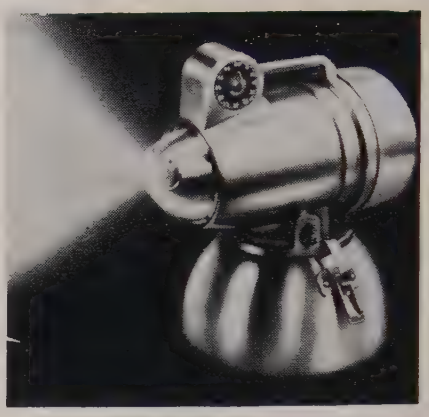
you can depend on DOW FUMIGANTS DOW

- Sprayers
- Nozzles
- Fogging Machines
- Masks & Canisters
- Gas Detectors
- Gloves

Equipment

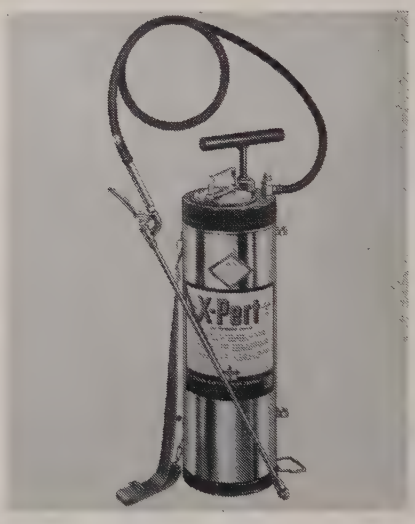
One quart pistol type sprayer

Two gallon sprayer

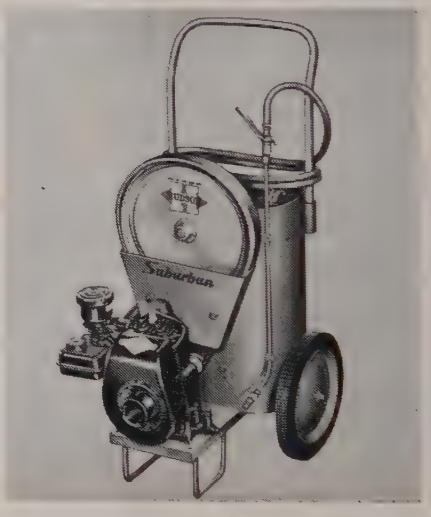


One gallon electric sprayer and mister

Two quart residual applicator

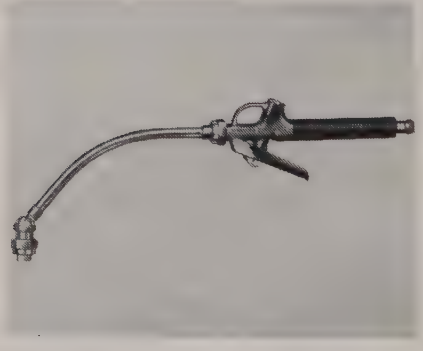


Three gallon tank type sprayer

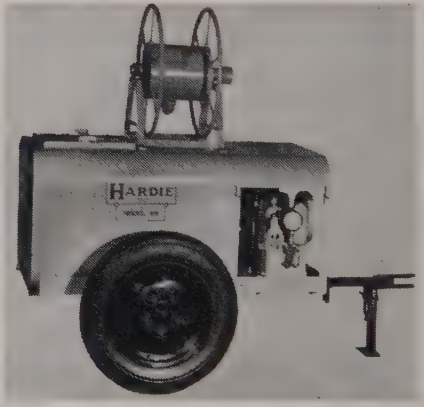


Power sprayer mounted on movable cart

One gallon precision sprayer



Trigger sprayer nozzle and extension

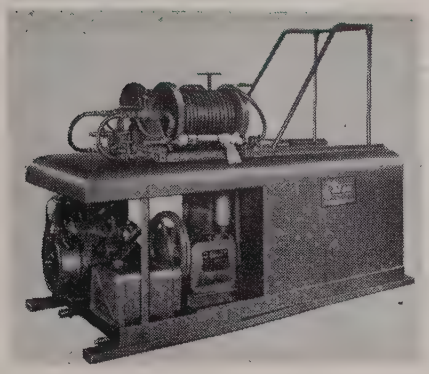


50 gal. engine trailer sprayer with hose reel

Featuring 30 Representative Pieces Of Typical Pest Control Operator Equipment

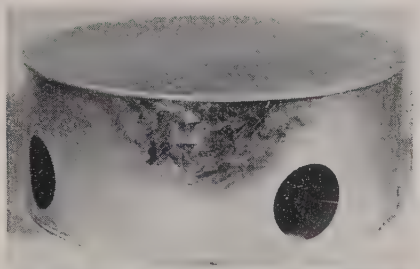
- Pumps
- Louvers
- Hammers
- Drills
- Bait Stations
- Deodorizers

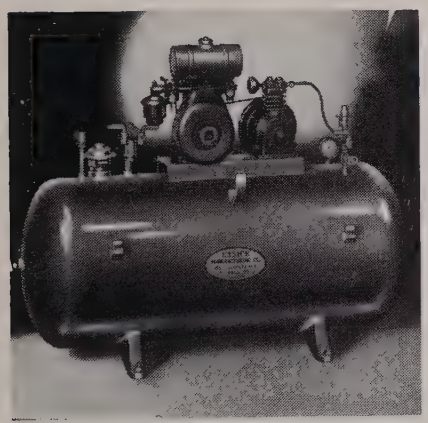
Panorama



150 gal. power sprayer for truck mounting

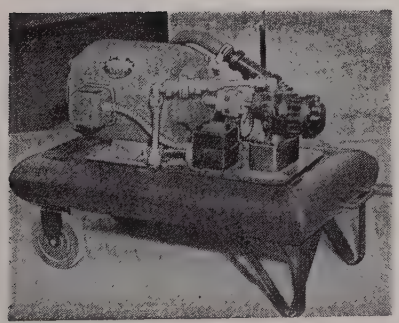
Indoor insecticide fogging unit



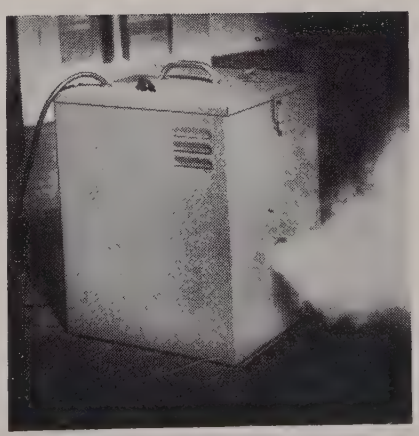


65 gal. spray tank, motor, discharge unit

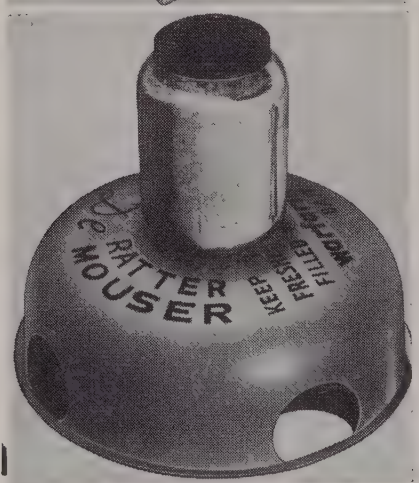
Portable aerosol fog generator



Five g.p.m. pressure termite treating unit



Electric volume vaporizing unit



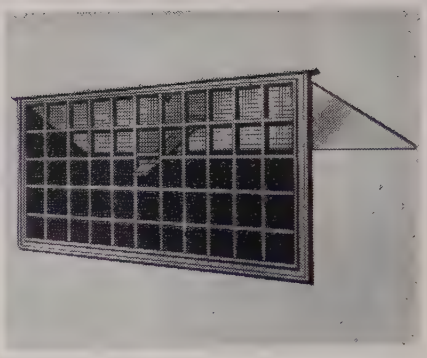
Three types of rodent bait stations

Manufactured And Distributed By Suppliers Who Use The Pages Of PEST CONTROL

Additional Photographs of Typical Equipment Designed For Pest Control Operators

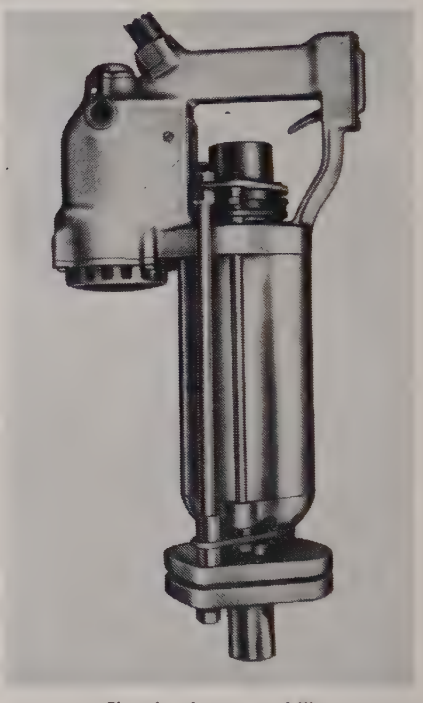
Self priming drum pump

Sound unit for repelling starlings

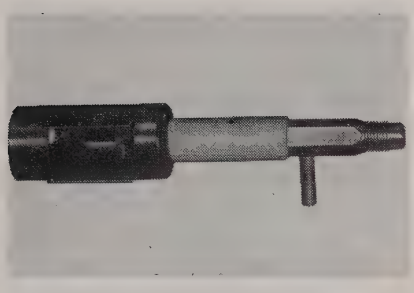


Aluminum screen and ventilator

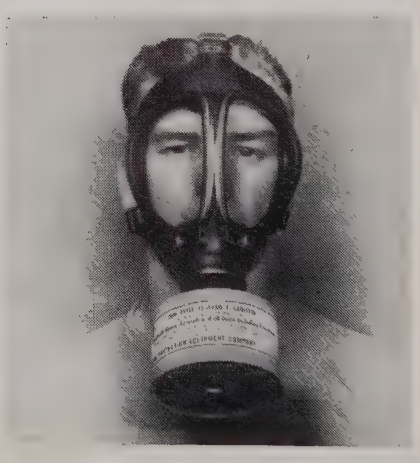
Protective synthetic rubber gloves

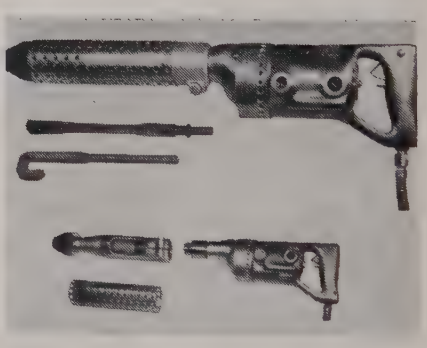


Electric hammer drill

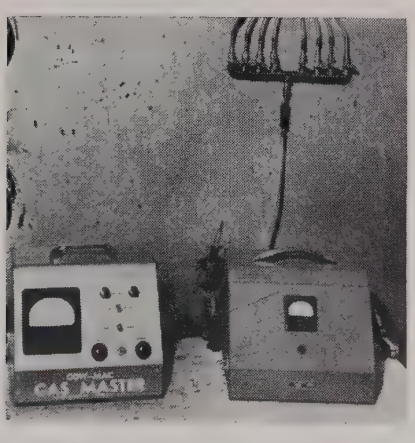


Halide non-combustible gas detector





Electric hammer and drills



Methyl bromide gas detection unit

Respiratory protective equipment

Electric deodorizer, scent conditioner

A Growing New Market for PCO's

CHLORDANE

...for turf insect control around landscaped plants and offices

WITH industry flocking to the suburbs, insects are now chewing up millions of dollars more in lawns, shrubs and flowers around these newly landscaped grounds. Why not go after this extra "outdoor business"?

Without requiring high-priced application equipment, CHLORDANE kills destructive insects with complete safety to turf and gardens. *Write today for proven suggestions on establishing a profitable outdoor-insect control program.*

CHLORDANE KILLS ALL THESE INSECTS:

- Lawn Moths
- White Grubs
- Chinch Bugs
- Japanese Beetle Larvae & Adults
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- Earwigs
- Wireworms
- Armyworms
- Spiders
- Cockroaches
- Fleas
- Carpet Beetles
- Mosquitoes
- Clothes Moths
- Wasps
- House Flies
- Termites
- Silverfish
- Box Elder Bugs
- Maggots
- Flea Beetles
- Mole Crickets
- Thrips
- Strawberry Crown Borer
- Seed Corn Maggot
- Spittle Bugs
- Strawberry Root Weevil
- Sod Webworms or Lawn Moths

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Henderson Answers Khapra Beetle Questions at CSMA Mid-Year Meeting

Is the khapra beetle really a serious pest to U. S. grain? Does the insect spread rapidly? Why has USDA put so much emphasis on khapra beetles? These and several other fact-searching questions asked about the government's khapra beetle program were answered by Dr. L. S. Henderson, of the Department's Stored Products Insect Division, during the Chemical Specialties Manufacturers Association meeting held in Chicago late in May.

Seriousness of the khapra beetle problem loomed into prominence last year when it was discovered tons of grain had been made valueless by this pest. In one instance, 300 tons of barley were reduced to nothing in a California warehouse infested with khapra beetles. The February 22nd Federal quarantine on khapra beetles is the first such quarantine ever to be put into effect to control a grain pest, Dr. Henderson said.

Fortunately, this insect does not spread rapidly by itself, but man is primarily responsible for its distribution through infested sacks, railroad cars, or contaminated grain itself. The Department of Agriculture's publication A-261 pin-pointed the seriousness of this pest. Dr. Henderson thanked cooperating associations and commercial firms for giving wide distribution to this publication which has helped educate the public to be more alert to possible migrations of khapra beetles through normal trade channels.

Potential destruction by the khapra beetle is one of the main reasons for the specialized emphasis placed by the USDA on this insect. Its program has also brought about an increased awareness of the problems inherent in all stored grain insects. Two government experiment stations, one in Mesa, Arizona, and the other in Fresno, California, are now specializing on khapra beetle control and additional man power is being allocated to this work.

Can the khapra beetle be eradicated? Dr. Henderson was optimistic. Even though it is difficult to control, improved chemical treatments indicate there may be a possibility eradication will be realized.

Such improved techniques as checking concentrations during fumigation have improved results over the old method of having to wait to look at check insects after a fumigation is over.

On April 30th, 172 properties were still on the Federal khapra beetle quarantine list. So far, ten such properties have already been cleared and the quarantine lifted, Dr. Henderson reported.

● Livestock Fly Control Profitable?

Research conducted in the last few years tends to cast serious doubt on the conclusions that flies and/or the use of fly sprays on livestock had little or no bearing on milk or meat production. Prior to 1945 experiments indicated fly sprays did not improve milk production, according to Dr. George C. Decker, Head, Illinois Natural History Survey, Urbana.

Recent data, however, show the adverse effects of fly activity are quite obviously accumulative in nature. Dr. Decker showed graphs that revealed a correlation between an increase in milk production and higher usage of fly spray because of the greater milk and meat production such applications provide.

● Fly Repellents

Dr. Lyle D. Goodhue, of Phillips Petroleum Company in Bartlesville, Oklahoma, reported on laboratory and field tests with fly repellents conducted in conjunction with Dr. D. E. Howell of the Entomology Department at Oklahoma A. & M. College.

Extensive tests indicate 3 repellents provide good protection under most conditions of application. Duration of repellency under outdoor conditions can be greatly improved by the addition of stabilizers. Wettable powder formulations are superior to other types of sprays, Dr. Goodhue reported.

R - 326 (Di-n-Propyl isocinchomeronate) is an outstanding repellent to house flies. R-11 and R-440 are much more repellent to stableflies. Combinations of R-326 with either R-11 or R-440 show strong synergistic action. Pyrethrum synergists (such as MGK-264) increase the effectiveness of these repellents, Dr. Goodhue said.

● Insecticide Sales Highest Ever

In its insecticide survey, the CSMA found the sale of liquid insecticide sprays in 1954 was the highest of any previous year studied. Total sales of liquid sprays in 1954 were reported to be 10,433,000 gallons as compared with 8,614,000 gallons in 1954, an increase of 21%. Chlordane residual type sprays now constitute the greatest share of the packaged market for insecticides, accounting for 35% of the 1954 sales of all insecticides.

However, space sprays far outsold residual types in bulk quantities last year. Space sprays such as those used to fight flies and mosquitoes, accounted for the largest share of the 1954 insecticide production.

● Roth On Retail Selling

Point - of - sale advertising and merchandising is destined to play a greater and greater role in the marketing of all types and classifications of American products, Velsicol's sales manager, Dr. Roger W. Roth, told delegates. He encouraged the adoption of effective counter displays and other advertising media to increase sale of pesticides in retail outlets. "National advertising," he reported, "is more of a factor than ever in assuring the public of quality. The 'as advertised in' type of display is popular — provided it is linked with the actual merchandise in stores." Velsicol has begun to provide sellers of their chlordane products eye-catching display material.

Dr. R. H. Nelson, new executive secretary of the Entomological Society of America, explained that the main purpose of his society is to promote the science of entomology in all of its branches. He encouraged cooperation from all industries concerned with insect control and invited interested persons to become members of his expanding group.

Over 725 representatives from chemical specialty houses attended this year's two-day meeting. The association's 42nd annual convention will be held at The Roosevelt Hotel, New York City, December 5-7.

NEW, IMPROVED!

Cut cost! Save time!

3 GALLON STAINLESS STEEL SPRAYER

A 3 gallon stainless steel unit that is built for service! Economical and efficient in operation. CHECK THESE FEATURES: All mechanical seals — no soldered inlets — leakproof valve gauge with unbreakable crystal — stainless steel 3 gal. tank and pump by Hudson. Renewable hose end adapters — 5 ft. PCE oil-resistant hose 1/4" I.D. — 18" PCE extension wand — fan pattern spray nozzle — Knapsack type web strap. **$31.50**

All Prices F.O.B., Mount Vernon, N.Y. All Prices Subject to Change Without Notice. Write for Catalog.

PEST CONTROL EQUIPMENT COMPANY

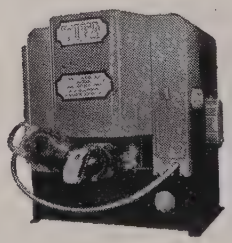
24 North Bond St. **MOunt Vernon 8-1197** **Mount Vernon, N. Y.**

DONT FALL FOR A "BUY"

INVEST IN THE BEST!

Other applicators appear to be "available for less." Some are offered at discounts; some are second-hand. These "bargains" are bound to cost you money rather than save it! For continuous satisfactory results, depend on TIFA — first in the field and successfully used for more than 10 years in pest control. You'll find that the finest applicator is the least expensive in the long run!

TIFA



Ideal for exterior and large interior uses such as public health programs, commercial structures, warehouses, etc. One-man operated and handily transported on a jeep or small truck.

AMERICA'S FIRST

AND FINEST . . "TIFA" Todd Insecticidal Fog Applicator

is the only applicator carrying Underwriter's Listing Seal

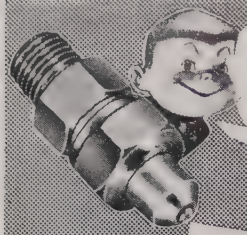
Ask us your questions, ask for folders

PRODUCTS DIVISION

TODD SHIPYARDS CORPORATION

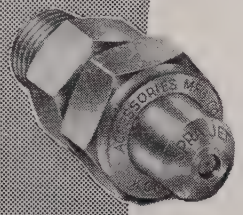
Headquarters: **Columbia & Halleck Streets, Brooklyn 31, N. Y.**

Plant: **Green's Bayou, Houston 15, Texas**



EVERY *Sprajet*® NOZZLE IS HAND TESTED!

Sprajet DESIGNERS and MANUFACTURERS of nozzles and associated accessories for BOTH Pest Control and Agricultural Spraying. We are proud of our PRODUCTS—and our NEW scheduling system designed to give our customers quicker SERVICE than ever before.



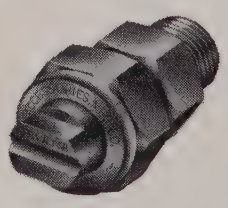
Sprajet **CONE NOZZLES**—Designed for spraying insecticides. SPRAJET CONE NOZZLES deliver a misty cone-shaped spray. The special "Boiling Action" of this spray pattern gives proper distribution for insecticides. SPRAJET NOZZLES are available in Female or Male Connections. SPRAJET CONE TIPS can be used in all nozzles and are available in full range of orifice sizes for all insecticides.

Sprajet **THIOSEAL CHECK VALVES** are SPRING operated and will keep your nozzles from dripping and wasting costly chemicals. Available in SPRAJET SR. CONE or FLAT FAN nozzles or may be installed separately.

SPECIAL *Sprajet* FEATURES:

1. SPRAJET tips are recessed for protection. Each tip is HAND tested and guaranteed for one full spraying season. 2. SPRAJET tips clog less because the screen is always LOCKED to the tip. This gives you the same protection while you are CLEANING the screen as when spraying. "Screens Locked in Means Dirt Locked Out." 3. SPRAJET nozzles have ONE—not two sealing surfaces. This reduces the possibility of nozzle leaks by 50%. 4. SPRAJET—the NAME to remember for better QUALITY and LOWER cost.

Sprajet **FLAT FAN NOZZLES**—Cover a wide area with a fan-like spray. Actual field tests prove how effective this spray pattern is in chemical WEED CONTROL. SPRAJET FLAT FAN NOZZLES are available in full range of orifice sizes for chemical WEED CONTROL, with FEMALE or MALE connections.



Sprajet **HAND VALVE.** This sturdy, low cost, hand valve is ideally suited for any hand spraying operation. Its positive cam-lever shut off action will withstand high pressures. Revolutionary water-sealing gasket principle eliminates packing.

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Calcium Cyanide
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★ The ideal fumigant for control of Rats

★ Manufactured by the American Cyanamid Co.

★ Packed Six 5 lb. Cans to Each Case.

1-9 Cases	@	$10.70 Per Case
10-99 Cases	@	9.60 Per Case
100-199 Cases	@	8.40 Per Case
200-299 Cases	@	7.50 Per Case

DELIVERY CHARGES PREPAID
Anywhere in U. S. A.

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Use Both to Kill Rodents!

NAPESCO'S
EAT-KIL

(Pival in a highly acceptable grain base)

New* Ready to Use Tastier Rat and Mouse Bait

*Bait based upon research studies at Purdue University and especially developed for the pest control industry.

½ lb. pkg.	$ .50	(48 per carton)
1 lb. pkg.	.90	(24 per carton)
3 lb. pkg.	2.00	(8 per carton)

Freight paid on orders over 150 pounds.

25 lb. pkg.	$ .40	lb.
50 lb. pkg.	.38	lb.
100 lb. pkg.	.36	lb.

Write for quantity prices

BAIT STATIONS

No. 1 Large Round Rat Station
14" diameter, 5½" deep
$1.60 each

No. 2 Small Round Mouse Station
7" diameter, 3" deep
82c each

No. 3 Rectangular Mouse Station
6" × 11" × 3" deep
$1.00 each

All Metal Equipped with Swivelling Self-Feeder

NAPESCO, INC.

East of the Mississippi Order from
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Lafayette, Indiana

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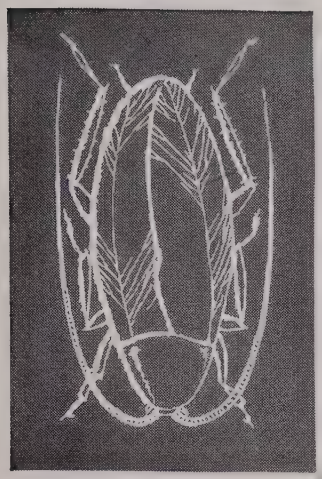
Harlan R. Shuyler
NAPESCO, INC.
3138 State Avenue
Kansas City 2, Kansas

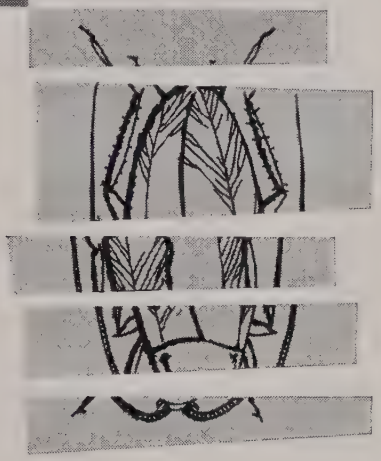


Think first of

DIAMOND LINDANE

for

PEST CONTROL



DIAMOND LINDANE (100%) is highly effective for industrial and household pest control. It is practically odorless, kills three ways—by vapor, contact, and stomach action. It works quickly and continues to kill because of its good residual action.

And when you use DIAMOND LINDANE, as with all DIAMOND products, you are sure of uniform high quality at reasonable price. For information on any DIAMOND product for pest control call your nearby DIAMOND Sales Office or write DIAMOND ALKALI COMPANY, 300 Union Commerce Bldg., Cleveland, O.

Diamond Chemicals for PCO

LINDANE—100% gamma isomer of BHC. Emulsions, Wettable Powders

DDT—100% Technical

DDT—Wettable Powders, Dust Concentrates and Emulsions

BHC—40% Technical, 12% Wettable Powders, Emulsion Concentrates

DIAMOND ALKALI CHEMICALS

Diamond Chemicals

For Professional Results

Get All 3!

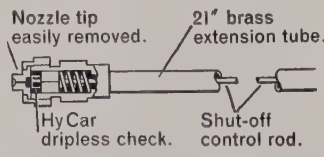
1. No Drip
2. Uniform Discharge Pressure
3. Uniform Droplet Size

USE HUDSON X-Pert* SPRAYERS

with MiniMax* Spraying System

Pump valve limits tank pressure.

Valve regulates discharge pressure



No dripping — HyCar check shuts off spray at nozzle tip.

Minimax Spraying System is the ultimate in precision spraying. It consists of: 1. A valve that signals when tank pressure is 55 lbs. 2. A valve that holds nozzle pressure at a constant 25 lbs. for uniform spray pattern, correct droplet size. 3. Drip-Not* valve that shuts off positively at nozzle, allowing no drip whatsoever.

Other outstanding X-®Pert features: Simplex Inner-Seal* closing — "The higher the pressure, the tighter the seal" . . . Tubular strainer at control valve . . . Large tubular handle (also stores nozzle tips) . . . Footrest . . . Nu-Action* pump . . . Welded tank . . . 5' of Kem-Oil* hose. 3 or 4 gallons, stainless or galvanized steel tank.

Saf-T-Lok* X-Pert 2 gallons

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Electric Sprayers

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TERMITES and other enemies of wood

Proper Care and Maintenance Of Termite Equipment Pays Off

Written especially for the July issue of PEST CONTROL by eight termite equipment manufacturers and suppliers.

Compressors

By WILLIAM L. BREHM
B. & G. Company, Philadelphia, Penna.

There are many makes and models of air compressors. Various types of compressors can be used as merely a source of air supply or air pressure which can be utilized in a number of ways.

High capacity compressors are used to run air tools while the lower capacity compressors are a source of pressure to dispense liquids in the form of sprays. All capacities, however, do have certain fundamental components.

Motors

Air compressors are generally powered by either an electric motor or a gasoline engine. Both types require certain basic lubrication and maintenance.

1. Electric Motors generally require oil lubrication. For satisfactory operation, it is important the recommended lubricating instructions for the model you are using be followed.

2. Gasoline Engine: Maintaining the recommended oil level is extremely important in any gasoline engine. In the heat of summer it is wise to change oil in the crank case every 72 to 78 hours of operation. (If the oil becomes exceptionally dirty it should be changed more frequently). To facilitate easy starting and trouble-free operation, tear down your gasoline motor once or more a year, depending on the extent of use. Removal of excess carbon, possible replacement of valves, rings, etc., as necessary, can be done at this time. Maintaining the proper oil level with regular change of oil and periodic valve and carbon cleaning and replacement, should give a trouble-free motor that will start easily and run smoothly and efficiently. Running a gasoline motor with improper or inadequate oil will cause overheating and undue wear, with a marked decrease in efficiency.

Compressor

Most important feature of compressor maintenance is maintaining proper recommended oil level in the crank case, with a complete change to clean oil every four or five hundred hours of operation (or less if the oil becomes gritty or dirty).

Tanks

Air compressor tanks can either be reservoir tanks which hold only the necessary air supply, or liquid tanks which will hold both air and the spray liquid.

1. Air Reservoir Tanks should be drained periodically preferably after every day's operation. Considerable condensation of moisture in an air reservoir tank will accumulate. Unless this condensation is drained, it will rust the tank and may otherwise interfere with operation of the air compressor.

2. Spray Chemical Tank should be made of highly chemical resistant material and/or properly lined to prevent corrosion. Agitation can be created in the chemical tank by placing an air jet from the compressor into the bottom of the tank. In some types, paddle wheels supply agitation. In this case, the shaft at each end of the tank must be periodically repacked with a wick sealer to prevent leakage.

Gauges, Etc.

To insure safe operation maintain properly operating gauges, unloaders and pop-off valves. Such fittings should be replaced as necessary to prevent overloading your tank and causing undue wear and tear on your compressor as well as a possible safety hazard.

•

Pumps

By GEORGE L. EWING
Ewing Manufacturing Company
Jackson, Miss.

Many of the portable termite treating units which were widely used for termite control work before the introduction of water base chemicals are now obsolete for applying water base solutions. The pumps on these units were primarily designed for pumping clean oil base chemicals, such as pentachlorophenol and orthodichlorobenzene, the handling of which was a minor problem. The pumps with which these units were equipped were of all-metal construction with the parts being fitted to an extremely close tolerance, necessary to build up pressure and perform properly.

Water base chemicals are moderate to highly abrasive, and unlike oil, are without lubricating qualities, and will soon wear the working parts. Close tolerance is thus destroyed, resulting in inadequate performance. However, with proper care, some of these pumps will handle the water emulsions very satisfactorily.

Pumps should be washed out thoroughly after each day's operation and oiled internally with 20 or 30 weight motor oil to prevent pump parts from becoming gummy and possibly freezing up. Before each day's operation the unit should be tested at the pump shaft by hand to see that the

don't keep 'em in the dark!

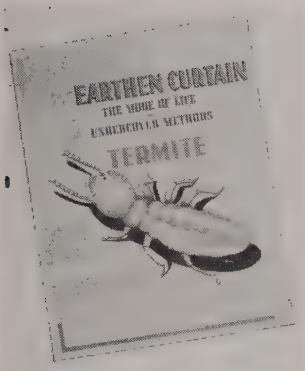
TELL YOUR PROSPECTS OF THE DANGERS OF TERMITE DAMAGE AND OF YOUR VALUABLE SERVICES.

Use these colorful, attractive folders, personalized with your own imprint, to bring your prospects "out in the open."

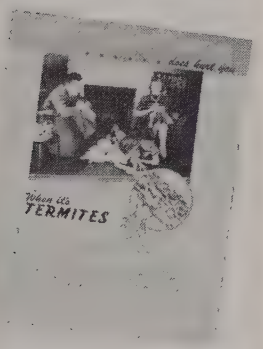
Excellent mailing pieces—may be used as hand-out literature—clever ideas for your own sales program!!

Here are advertising pieces keyed to the presentation of accurate information in a clear and easily understood manner. Prepared with the co-operation of leading termite control authorities, they present not only the hazards of termite infestation, but also the real economy of adequate control in clever, eye-catching designs.

You leave your sales talk with your customer when you leave him one of these folders.

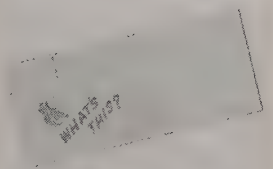


BEHIND THE EARTHEN CURTAIN
A manual type of folder, containing an interesting outline of life and activities of the subterranean termite. Profusely illustrated with damage photos and drawings of various termites. Lithographed in red and black.

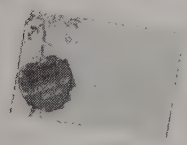


WHAT'S THIS
Front panel of this folder shows a termite colony which is difficult to identify, yet when unfolded the termite tunnels can be seen entering the foundations of house by way of basement walls. Inside contains explanatory copy. Your prospects can't help opening this one up to find out for themselves, "What's This!"

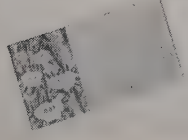
WHAT YOU DON'T KNOW
What you don't know . . . DOES hurt you. A peaceful family group is illustrated, with a cross section of the floor exposed showing the termite busily eating away the very timbers supporting this happy group. This folder is lithographed in orange and black.



GARDEN OF EATIN'
One of our newest folders available to the Pest Control industry, this advertising folder employs a humorous outside "teaser," with Any House can be a Garden of Eatin'. Inside of folder pictures various types of homes, old and new alike which might be infested with termites.



THEY EAT AND THEY EAT
Here's one of the most attractive mailers you've seen. Can be used as a mailer or stuffer as well. Easily fits in envelope. By adding a spot of glue (with pencil eraser) between inside folds, the folder itself tears as the recipient opens it. Inside copy reads: "Once they start—they'll tear your house apart." Damage photos as well as general sales copy also included in this folder.



MAIL COUPON TODAY FOR ACTUAL SAMPLES AND NEW LOW PRICES

CHAPMAN

CHAPMAN CHEMICAL COMPANY
707 Dermon Building • Memphis, Tennessee

Chapman Chemical Company
707 Dermon Building
Memphis, Tennessee

Please send free actual samples of your termite mailing pieces along with the list of prices.

Name_____

Address_____

City_____ Zone ____ State_____

shaft turns freely. If it does not then correction should be made before starting the motor.

One big mistake most termite operators make is to think the conventional type pump will give equally as much pressure on water solutions as on oil base. If your pump will operate at 150 pounds on oil then do not expect more than 80 pounds on water, and the life of your pump will be greatly increased. A good rule to follow is to expect one-half as much pressure on water as on oil.

Another must for good pump performance is tight connections and a clean strainer. Also suction hose, agitator hose (by pass), and treating hose should be in good condition and always kept free of kinks, even when out of service.

All reliable manufacturers provide operating and maintenance instructions with their portable units. Remember, no matter how well the portable termite treating unit is designed and constructed, it is no better than the care it receives.

Fully automatic Syntron Electric Hammer Drills combine light weight with rugged, dependable performance to cut time and costs on any concrete drilling job. Used by leading pest control operators for continuous, trouble-free production drilling, Syntron Hammer Drills are ten times faster than manual methods. 3600 powerful, electromagnetic blows per minute with only one moving internal part eliminates all ordinary maintenance problems.

Write Today for Tool Catalog — FREE

SYNTRON COMPANY
790 Lexington Avenue — Homer City, Penna.

Drills

By S. G. SUNDGREN
Termite Drills, Inc.
Pasadena, Calif.

The focus of this article is on the proper care and maintenance of multiple-carbide-insert rotary masonry drills which range in standard diameters from ¼-5″ and in length from 5-36″.

Aside from avoiding sharp blows on the carbide inserts such as occur when the drill is dropped on concrete or thrown carelessly into a tool box, the problem becomes primarily one of proper operation and preparation for operation. The following points in this latter regard are fundamental to assuring long-run satisfactory performance.

1. Follow the manufacturer's recommendations as to speed and pressure. These general recommendations are remarkable in their uniformity and unless they are followed the user will, for instance, burn up a drill bit by using excess speed or hasten its dulling by too little pressure and the resulting "riding" of the inserts on material they should be constantly penetrating.

2. Check the inserts frequently to be sure they remain sharp. Dull inserts increase the pressure necessary for penetration; increased pressure demands hasten worker fatigue. And if the inserts are dull it is impossible to drill through steel reinforcing bars, etc. Check the manufacturer's instruction sheet for simple resharpening instructions, or return the bit to the factory for resharpening.

3. Stop drilling, if possible, whenever it is discovered that a carbide tooth or insert is broken. Continued drilling with a broken insert means probable breakage of the remaining good inserts by rotation against pieces of broken carbide left in the hole; and it means certain wearing away of steel around the slot of the missing insert, with the result that factory repair may be made impossible.

4. Maintain accurate alignment of the drill with the hole being drilled; otherwise binding, insert breakage and excess wear of the dust-removing worm will result. The multiple-insert design goes a long way toward avoiding the "drifting" which occurs when a single insert strikes a piece of hard aggregate; and a hardened high-quality steel drill body will

minimize the harm done through the misalignment which does occur. Yet, care on the part of the operator is still an important factor in avoiding the wasteful wear caused by misalignment.

5. Avoid alteration of the drill. Many users attempt to create extra-length drills by welding extra pieces to the standard length shanks. Generally the result is a shank distortion, resulting in drill wobble and binding in the hole. From diameters of 5/8 to 7/8" on up, shanks are generally removable from the drill body and extra length shanks are obtainable for almost any desired drilling depth. Popular sizes of the smaller drills are available in lengths up to 24 or 26" even though shanks in these small sizes, such as 3/8" diameter, are usually not removable.

It is hazardous for the user to turn down the shank of the drill. Doing so may permit use in a lower capacity electric or air drill than would have been possible with the original shank diameter, but it also runs counter to the manufacturer's usually good judgment as to the necessary capacity of the driving tool. Inadequate capacity results in rapid insert dulling through inability to maintain necessary speeds and pressures.

•

Electric Hammers

By C. M. HURD
Syntron Company
Homer City, Penna.

One of the most important things in keeping an electric hammer or electric hammer drill in operation is cleanliness. A hammer that is thoroughly cleaned and well oiled will give the best service. This also contributes to a longer life of the hammer parts.

Clean and wash all the parts removed from the hammer in gasoline or some other quick drying cleaning fluid that will remove all traces of dirt. Then, using a dry cloth or one that has been slightly dampened with kerosene, gasoline or similar substance, clean the inside of the hammer barrel thoroughly.

After the hammer is thoroughly cleaned, oil parts with a light coating of oil. Put approximately two teaspoonsful of oil in the hammer barrel and reassemble the hammer.

Every electric hammer and electric hammer drill must be cleaned at least once a week and should be oiled at least once a day. When the hammer has been taken apart for cleaning and oiling, it is a good idea to check the electric hammer switch to make sure that you have the proper contacts and that all the wires are attached tightly to their contacts in the hammer handle.

From time to time the plugs on the end of the hammer cable, the extension cord (if used) and the receptacles in the controller, should be examined. These are the basic things that keep an electric hammer operating over a period of time.

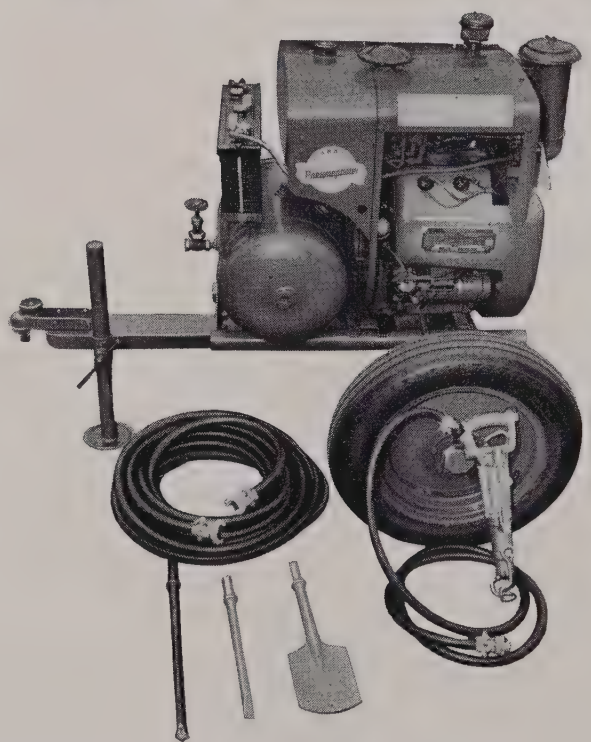
Tarpaulins

By M. PARCELLS
Minx Products
Los Angeles, California

Care and maintenance of tarpaulins is obvious. Patching materials should be in a kit with the tarps. Heavy needles, thread and an awl are useful.

For vinyl coated tarpaulins, vinyl cement is required. Small holes and tears may be patched with several kinds of cloth-backed, pressure sensitive tape. Since tarps are seldom unfolded except at the job, the patching

A COMPLETE PACKAGE



Schramm Model 35 CFM Engine Driven Compressor Complete With Tool Chisels and Hose For—

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Air Compressors Built in Sizes Ranging From 20 to 600 C.F.M.

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MANUFACTURERS OF AIR COMPRESSORS

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For Fast..Easy Sawing

Milwaukee

...EVEN IN THE TOUGHEST PLACES

Model 414

SAWZALL

A Complete Single Unit

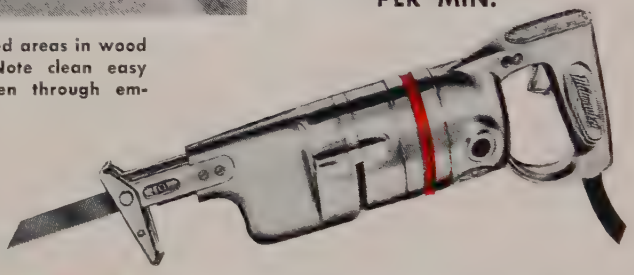
ELECTRIC HACKSAW

Works Fast
Saves Money
Saves Tempers

2250 STROKES PER MIN.

Removing termite damaged areas in wood studs prior to repair. Note clean easy way SAWZALL cuts, even through embedded nails.

Lightweight . . .
Only 6¾ lbs.



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SAWZALL puts an end to sawing fatigue. Zips quickly through wood, metal, plaster, embedded nails, composition material, asphalt, tile, etc. Guides easily with one hand and so perfect for tight spot sawing. Full 1/3 H.P. MILWAUKEE-Built 115V Universal AC-DC motor. Ball and roller bearing construction. Wide assortment of 29 different blades to meet every sawing need.

Investigate the SAWZALL . . . You'll be amazed at what it can do in speeding up your jobs . . . Helps you do better work . . . makes more money for you.

Only $84.50

Complete with handy steel carrying case and assorted set of Sawzall blades.

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5350 W. State Street • Milwaukee 8, Wisconsin

equipment should go with the tarps.

Good tarpaulins are a very substantial part of a fumigators capital investment and it is well to keep this fact constantly in the minds of those who use them.

•

Polyethylene Tarpaulins

Visking Corporation
Terre Haute, Indiana

Polyethylene film tarpaulins require no maintenance. After a job is completed, just fold the film and store it until needed again.

The film is completely inert. There is no known solvent for it, and it is completely unaffected by most chemicals. This means the special care which must be given to other types of tarpaulin materials when chemical insecticides are used need not be given to this film. Avoid puncturing.

•

Gow-Mac Gas Master

By JAMES L. McFADDEN
Gow-Mac Instrument Company
Madison, N. J.

Care and maintenance of the Gas Master is relatively simple.

Sampling, which means the constant delivery of a clean, dry stream of gas from a critical point to the instrument, is 60% of the battle. Sample techniques must be uniform; no contamination of, or leakage into, the sample can be permitted. This means inert sample lines.

Water vapor must be eliminated as a variable, since it reduces the reading of a methyl bromide meter. Carbon dioxide, on the other hand, increases a methyl bromide reading. Both can be compensated in making the initial zero check.

Operating hints: Re-read your instructions now and then. It will remind you about warm-up time, consistent checking of cell current, purging the sample lines and the instrument with fresh air before storage, tapping for meter friction, not exposing the instrument to direct blasts of hot or cold air while operating and other checks.

Maintenance: Tight electrical connections and clean rheostat and switch contacts are paramount for good reading.

Calibration: Can be checked in the field with cylinder nitrogen or even with respired air.

Treat your Gas Master as you would your watch and it will re-

PENTA
CHLORDANE
DIELDRIN
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MALATHION
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ARAMITE
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SALES AIDS TO HELP YOU

TERMITE INSTRUCTION MANUAL

Filled with helpful information on termite treating procedures. Get one for your service men. FREE to customers.

MAILING PIECES

Powerful sales-building folder. Imprinted with your name and address at nominal charge.

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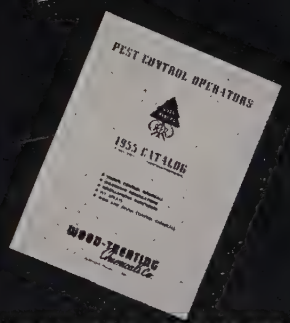
Inquiry-getting, sales-producing ads that build business for you. NO CHARGE! Write for proof sheet.



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WOOD TREATING

If you have any pest control problems, Wood-Treating will be glad to give you the benefit of their years of experience without obligation. Write!

GET AT THEM FAST!

Drill Any Size Hole in Any Masonry Material Faster, Cleaner and at Less Cost with

NEW ENGLAND

Carbide-Tipped

MASONRY BITS

When **any** masonry material — brick, concrete or hard granite — stands between you and a quick and effective pest control job New England Carbide-Tipped Bits will solve the problem in a hurry.

Over an inch a minute speed through hard concrete is habitual with these modern bits. Dust-removing spiral flutes prevent clogging and binding. The special carbide tips withstand shock and wear for long service.

Available in a complete range of sizes fitting practically every make of electric rotary drills, electric or pneumatic hammers.

Cyclo-twist
CARBIDE TIPPED
ROTARY DRILL BIT

For rotary drills — Most commonly used diameters: ¼", 5/16", or ⅜" by 6" length. Other sizes to 1½", lengths to 36".

Thunder-twist
CARBIDE TIPPED
HAMMER BIT

Most commonly used sizes: ½", ⅝", ¾" by 12" length.
Other sizes to 1", lengths to 18".

New England Carbide
TOOL COMPANY, INC.
60W BROOKLINE STREET
CAMBRIDGE 93, MASS.

ward you with years of useful and profitable service.

•

Halide Leak Detector

By CLIFFORD C. ANTHES
Linde Air Products Co.
Union Carbide and Carbon Corp.
New York, N. Y.

The super-sensitive "Prest-O-Lite" Halide Leak Detector is expressly designed for locating leaks of non-combustible gases, even when leaks are as small as 20 parts of gas in a million parts of air. It will detect methyl bromide, trichlorethylene, and tetrachlorethylene vapors, but should be used for this purpose only when concentrations are less than 10%, and when suitable precautions are taken to protect the operator against the toxicity of the gas.

The following preventive measures will assure maximum sensitivity on every job.

If, during flame adjustment, the secondary flame is **yellow**, either insufficient air is being drawn into the burner tube, or the reaction plate is dirty. Insufficient air may be caused by: (1) obstructed or partially collapsed suction tube; (2) dirt in the burner tube; (3) dirty or partially plugged injector orifice.

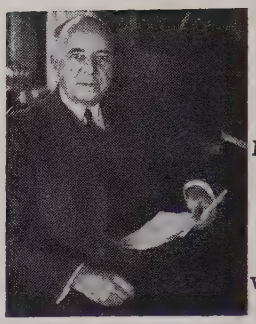
Blowing air through the suction tube and back through the detector will usually clear out dirt and foreign matter. To clean a dirty reaction plate, allow the flame to burn for several minutes.

Occasionally, an oxide film may form over the surface of the reaction plate, reducing its sensitivity. This condition will not occur in normal use of the detector.

This film or scale will generally break away from the plate by itself in normal use. However, if the operator notices or suspects any loss in sensitivity, the plate assembly should be removed, and the face of the plate scraped clean with a knife or sandpaper.

Important precautions to remember in setting up the detector are to: (1) clean all seating surfaces before assembling; (2) make sure the seating surfaces of all connections are gas tight (check for leaks frequently with a soapy solution); and (3) make sure all valves are closed.

Never use a leak detector: (1) when methyl bromide vapors are in concentrations of 10% or more; (2) when trichlorethylene vapors are in concentrations of 5% or more; or (3) when the air may contain combustible or explosive dust, gases, or vapors.



BORER LINES

by

Dr. Thomas E. Snyder

Consultant on Wood Boring Insects and Wood Preservation

Colonizing Termites

While termites in heated buildings may "swarm" at any time, outdoor colonies of our native subterranean termites near Washington, D. C., have their flights from the last of April to late fall. **Reticulitermes flavipes** (Kollar) swarms earliest during the last of April or first of May, when the dogwood tree is in full bloom. The smaller species **R. virginicus** (Banks) has its colonizing flight the first part of June. The light-colored, late flying species **R. hageni** (Banks) does not appear on the wing until July, August or later. The flight usually occurs on a warm sunny morning. Indoors in buildings these termites may swarm at night and be attracted to lights.

Just before the swarm, brachypterous reproductive forms with short wing pads, as well as wingless or apterous reproductive forms are associated with the winged macropterous adults. These young supplementary reproductive forms, although they have been present in large numbers, disappear from the parent colonies. Are they killed by the workers, on whom they now depend for food, since they have lost their intestinal protozoa which digest the cellulose for

(Continued on page 66)

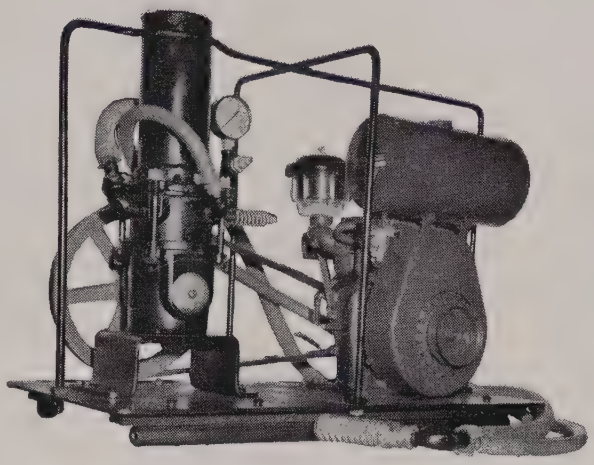
a. b. c.

Figure 1. Enlarged photograph of reproductive females or queens of **Reticulitermes flavipes.** (a) Macropterous adult developed from winged adult. (b) Brachypterous form developed from nymph with short wingpads. (c) Apterous queen which was developed from a wingless nymph.

Another FIRST For PRESHUR-MITE

A NEW Portable Spraying & Termite Treating Unit With A Pump That Does Away With Your Pumpaches

NEW DIAPHRAGM PUMP Eliminates expensive break-downs, can be repaired on the job in less than ten minutes with extra kit which comes with each unit. Unit comes fully equipped with 100 Ft. 3/8" I. D. chemical hose & Accessories. Wt. Approx. 145 lbs.



Portable unit shown handles abrasive & corrosive chemicals used in termite, pest, weed & grass control applications without damage to pump's pumping parts. Capacity 6 gal. per minute, pressure adjustable to 175 P.S.I. Agitates 55 gal. steel drum of solution thoroughly.

Catalog No. 1B119

EWING MANUFACTURING COMPANY

MAKERS OF HIGH QUALITY PEST CONTROL EQUIPMENT SINCE 1936

P. O. BOX 1986 JACKSON, MISSISSIPPI, U. S. A.

Meet Competition

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TESTED — 25th YEAR

BONDED CHEMICAL

For Termite & Powder Post Beetle Control

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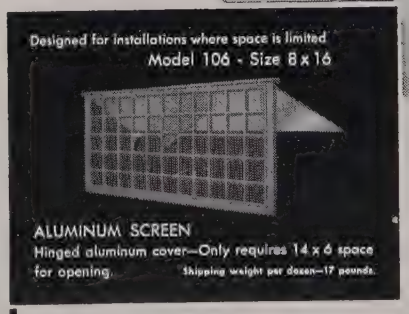
TERMITE CONTROL EQUIPMENT


Designed for installations where space is limited
Model 106 - Size 8 x 16
ALUMINUM SCREEN
Hinged aluminum cover—Only requires 14 x 6 space for opening.
Shipping weight per dozen—17 pounds.

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Our products are PROVEN BY TEST to be the BEST

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McMahon Brothers Stress Scientific Application of Chemicals for Highway

Weed And Brush Control

Operating on the theory that science has provided us with safe, effective chemicals to successfully control weeds and brush, McMahon Brothers of Binghamton, New York has proved it is entirely possible to eliminate these nuisance growths from American roads cheaper and more effectively than highway departments can do it by cutting and mowing.

McMahon Brothers is one of the pioneer pest control firms in pushing programs of highway chemical weed and brush control for health, safety, beauty, and economy. Here are 13 "sales reasons" the company has compiled why customers should contract for chemical control instead of using old-fashioned methods of mowing and cutting. Such a campaign:

1. Kills heavy weed and brush growth.

2. Eliminates or greatly reduces mowing operations.

3. Does away with the need of picking up cuttings and so saves labor costs.

4. Lets stands of grass reseed without causing a hazard.

5. Permits the establishment of sound turf by eliminating competitive growth.

6. Eliminates or greatly reduces hand operations and the hazards attending them.

7. Removes poison ivy and ragweed from the roadside and thus aids in public health.

8. Prevents seeding of weeds from roadsides to adjoining fields thereby helping agriculture.

9. Destroys harborages that foster breeding of insects, rodents and fungus.

10. Opens up roadsides to motorists' clear view of other vehicles, as well as to animals and children otherwise hidden from view.

11. Halts the spilling of snow upon highways and paves the way for easier and more economical snow removal.

12. Creates a beauty heretofore unknown on the great bulk of our highways.

13. Accomplishes all these things at substantial savings in cost over existing methods of roadside maintenance.

● "Operation Ragweed"

Last summer the company proved weed control aids public health by conducting "Operation Ragweed," a unique county-wide program to control this scourge along highways. A total of 1,860 miles of road in upstate New York's Sullivan County was sprayed to make the area safe for hay fever sufferers who visit the county's summer resorts.

Ten specially equipped trucks sprayed both sides of the county's highway system (3,720 miles of spraying) during the 12-day period. In addition to the roads, city streets throughout the county were treated between curbs and sidewalks with hand sprayers.

Sponsored by McMahon Brothers and the Sullivan County Hotelmen's Association, the single spray operation attempted to eliminate all weeds along the roadside, but it was not a highway job in any sense. Together the sponsors spent $24,000 and billed the county one dollar. Total cost to the county for three years of ragweed control will be $50,001.

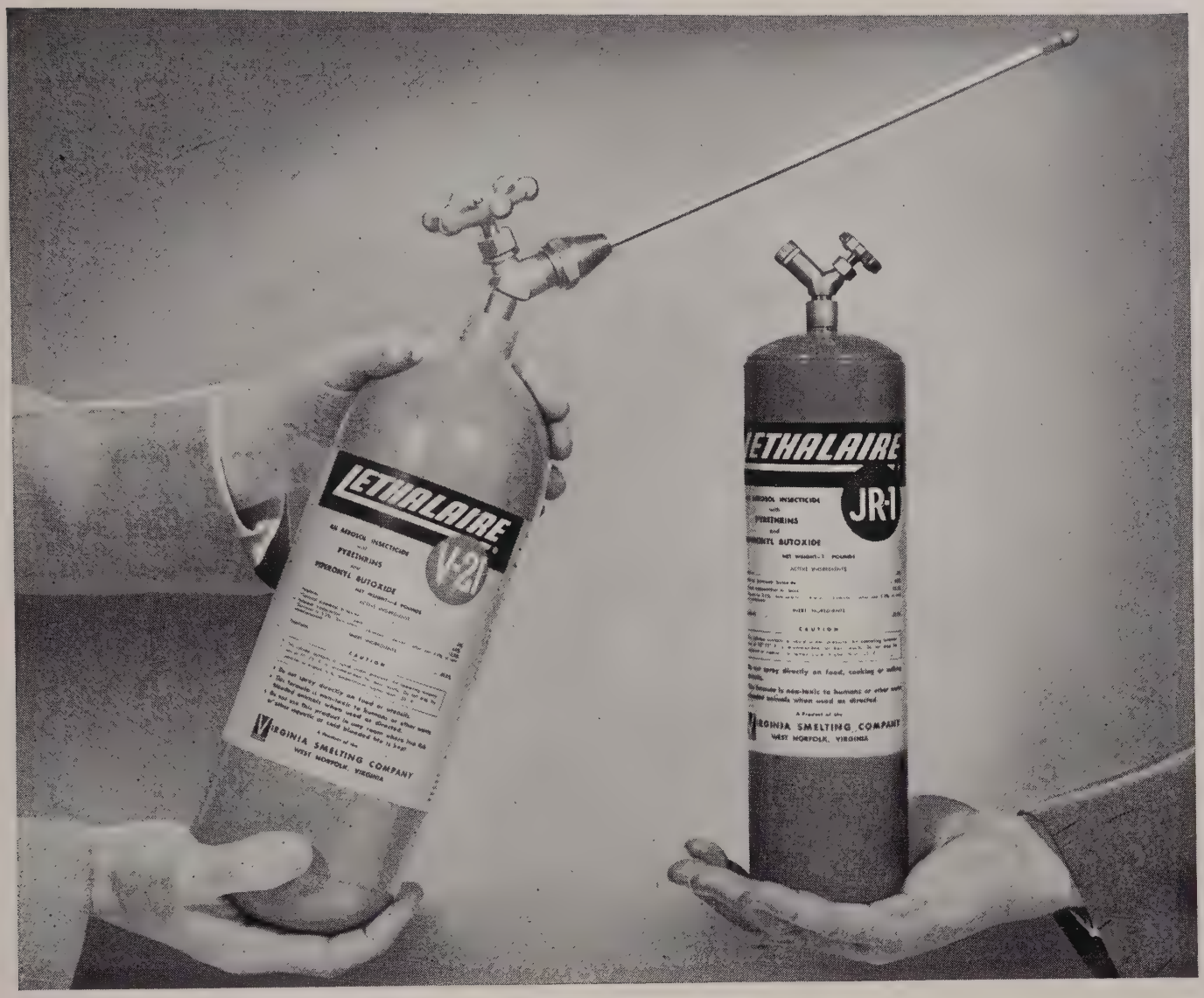
Trucks used by McMahon Brothers for this program and for all other highway jobs were designed and manufactured by the firm, using International chassis. A coarse spray is released through four fixed nozzles on the upright beam (see picture) at the forward right corner of the truck, under the driver's control (the trucks have right hand drives). Drift is said to be entirely eliminated by this spray method. Pump delivers the chemical at 20 gallons per minute at pressures from 90 to 800 pounds. One man can operate the truck and handle the whole spray operation.

Vehicles are used from May 1 until September 30 and then put in storage for the winter. During cold months the trucks are reconditioned and modified as the preceding season's work has suggested.

● 6 Differences Between Sprayer and Mower

In a recent address before the American Association of State Highway Officials, Raymond J. Mahon, general manager of the firm, told engineers there are six basic differences between the sprayer and mower: (1) sprayer moves faster; (2) it affects growth the mower cannot cut or reach; (3) kills the culprit plant rather than prunes it; (4) is not subject to constant maintenance;

McMahon Brothers application truck sprays side of highway to kill weeds and brush. Chemical is released through four fixed nozzles on upright beam at forward right corner of vehicle.



NEW LETHALAIRE JR. THROW-AWAY PACKAGE WIDENS PEST CONTROL MARKET

Practically everyone who has need for an insecticide recognizes the advantages of the big 5-pound Lethalaire® bomb. One trouble is, however, that many people who need it couldn't economically take advantage of the large size. Now, with the introduction of the Lethalaire Jr. throw-away package, everyone can benefit from Lethalaire economy, efficiency and control.

Like the bigger bomb, Lethalaire Jr. is perfectly safe wherever food is processed or served—when used as directed. It is also highly effective and very economical.

One Lethalaire Jr. package will operate continuously for 26½ minutes and treat 532,000 cubic feet of space. When a cylinder is empty, remove the applicator valve, transfer the valve to a filled container, and discard the empty.

The specially designed applicator valve is the secret behind the quality of the Lethalaire Jr. package. Unlike ordinary valves, which merely squirt out aerosol in varying quantities, this valve correctly meters the flow at a rate of 1½ ounces per minute and controls particle size for maximum killing effectiveness.

A number of formulas will eventually be packaged in the Lethalaire Jr. container, and two are available right now. One contains pyrethrins sulfoxide; the other, pyrethrins-piperonyl butoxide. Both these formulas will kill resistant flies, wasps, gnats, flying moths and mosquitoes.

Lethalaire has always been a remarkable market-opener, getting pest control operators in such places as supermarkets, hotels, dairies, etc., that they were unable to approach before. Now your market is doubled with Lethalaire Jr.—because you can sell small as well as large users. For complete details of the attractive Lethalaire proposition, write LETHALAIRE DIVISION, VIRGINIA SMELTING CO., Dept. PC, West Norfolk, Va.

VIRGINIA Chemicals

Available in Canada and many other countries

(5) encourages the growth of turf instead of weakening it by repeated cuttings which prevent plants from storing root reserves; (6) work must be minutely planned to make each application as effective as possible.

"If the object of a spray operation is merely to kill weeds, not much planning is needed. Since there are always weeds to kill, timing is unimportant.

"But if mowing costs are to be reduced and a strong turf established, roadsides should be investigated to determine what is there. Operators must know what weeds grow in the spring, summer and fall, when they germinate and when they seed. Remember, when using foliar spray every leaf has to be treated in order to kill the plant, and every last weed must be destroyed as soon as possible after it emerges, so that it is eliminated as a competitor of the turf.

"The greatest bulk of weeds grow in the spring so it is desirable to start control operations as early as possible. Unfortunately, the same spring rains that drive weeds to a great height so rapidly also retard spraying operations, therefore start of spraying must be calculated as not earlier than May first in the northeastern United States."

> Insurance on this work is generally $50 or $100 deductible depending upon the experience and record of the contractor. The operator must be better than expert and cautious since in each mile he has actually six miles of roadside spraying per season. If one $5 plant (and when you kill a plant it is always worth $100) in every six miles is killed, he will readily be out of business and will have residual troubles for months thereafter. Calls that must be made on offended individuals are delicate and should be handled with a sort of indescribable, vague, direct, elusive pleasantry. Needless to say, such an art cannot be taught, so the investigator had better have it built in.

● 3 Sprayings Per Season

Three sprayings during the season are recommended by McMahon. In the spring, sweet clover, poison ivy, dandelions, plantain, buckhorn, etc., are troublesome. Summertime brings more controls for such growth as Queen Anne's Lace, chicory, and milkweed. In the fall, same weeds as treated in the spring again give trouble since new plants are established from seeds sprinkled in from adjoining infestations, and the turf is not yet well enough established to resist them.

McMahon finds that a single spraying brings mediocre results but that three applications a season give good control. At the end of three years under such a program a strong, well established, weedless turf may be expected. After that, perhaps two sprayings per season will do the job and possibly even a rotated single spraying program will work.

● 2,4-D Plus 2,4,5-T Kills Brush

Brush cannot be overlooked in successful highway weed control programs. McMahon recommends a mixture of 2, 4-D and 2,4,5-T in the spray tank so that small wood growth will succumb with the weeds. The company has found in no other manner can this woody growth be controlled so easily or so economically as by merely adding 2,4,5-T to the mixture.

However, one rule is observed. If the growth is too large to fall by itself or if in falling it would

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Spiders, Moths, Mosquitoes, Silverfish, Wasps, Waterbugs, Bedbugs, Roaches, Etc.

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FUMO-KILL can be obtained in 2 oz. (enough for up to 6,000 cubic feet)—4 oz. and 1-lb cans.
Cost of 12—2-oz. Cans . . $7.50 per doz.
Cost of 12—4-oz. Cans . . $13.50 per doz.
Bulk . . . . . $4.50 per lb.

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Before PCOs take on any highway spraying operation they had better learn the business by practicing a great deal.

It is practically impossible to spray highways on any large scale without damaging some hidden plants to which owners attach great importance after they are killed.

Especially important is the public relations angle because in this type of operation expert handling of people is as important as applying the chemical itself.

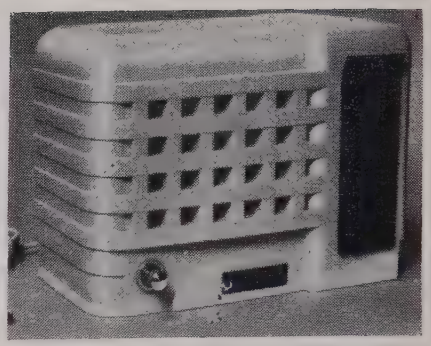
be a hazard to travel, it is not treated. Specifically, if it is an inch or more in diameter it is generally bypassed and left to be cut; but all the tangled under-growth, including poison ivy, is destroyed to make the cutting as safe and easy as possible.

The company has found repeated spraying, a necessity for weeds, is also necessary for brush control. No single application will kill all species, and it is unlikely it will kill all plants of the same species. Some plants, such as ash, require several sprayings; others, apparently dead, often produce new shoots from the unkilled portions of their root systems. Unless the operator takes these facts into consideration, he does not have a complete program at all.

$29.50 to $50 Per Mile Per Season

The company sprays roadsides of every description for prices ranging from $29.50 to $50 per mile per season. The program is set up on a 3-year basis and the cost covers spraying both sides of each mile three times during the season. Width varies with the desire of the customer and the terrain, each mile being different in the latter respect; but 8 to 24 feet on each side of the road can be fairly well covered within this price range. A volume of 3,500 road miles on the 3-year contract basis must be maintained to make the work profitable at this figure. That amounts to 21,000 spraying miles per season. This mileage must be in a single area with roads connecting.

Besides its inestimable benefits in reducing costs, labor and hazards of roadside maintenance, chemical weed and brush control looms as the only known method of eradicating public health hazards such as ragweed and poison ivy, McMahon says.



Wilco electric air freshener looks like a minature radio in both appearance and size.

Williams Air Freshener

A fan-operated air freshener which is said to neutralize unwanted odors has been developed by the Williams Chemical Co. According to the manufacturer, the Wilco air freshener wil deodorize areas up to 7,500 cubic feet.

Wilco Air Freshener is said to replace objectional odors with spice, pine, cedar and floral bouquet fragrances. Electrically operated, it can reportedly be plugged into any A.C. outlet.

For descriptive literature and price information contact the firm at 487 Broadway, New York 13, N. Y.

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★ **Long Life** with Chromalox Heating Element.
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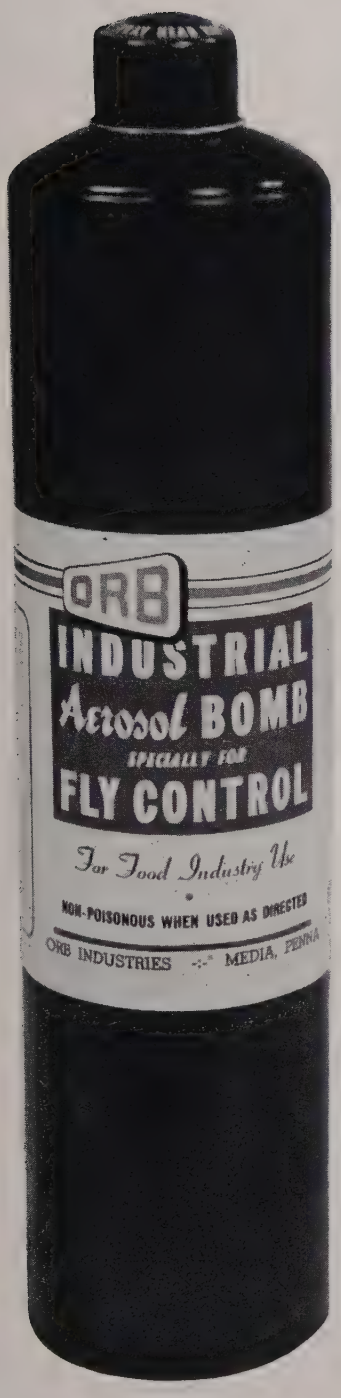

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2. **CONCENTRATED FOR ECONOMY.** Contains 4.0% piperonyl butoxide plus 0.5% pyrethrins.
3. **CONTROLLED PARTICLE SIZE.** Extremely small aerosol particles.
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Each Orb Three Pounder will operate continuously for about 40 minutes and treats 900,000 cubic feet of space. Each regular size ¾ lb. Orb Bomb operates continuously for about 9 minutes and treats 226,000 cubic feet. Both with disposable containers. Both equally effective.

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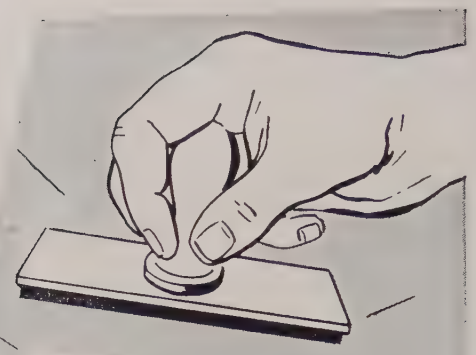

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Pyrenone* 606 SPRAY

*Reg. U. S. Pat. Off.

Kills on Contact!

All These Insects
Fruit Flies (Drosophila)
Common Flies
Grain Moths
Gnats—Roaches
Silverfish—Crickets
Spiders—Wasps
Ants—Mosquitoes
Cheese Skippers
Cheese Mites

Oil-Free, Non-Toxic

The U.S.D.A. has approved Niagara Pyrenone 606 Spray for insect control in food processing and food handling establishments.

This new formulation is an oil-free emulsifiable concentrate containing 60 per cent piperonyl butoxide and 6 per cent pyrethrum. *It is non-poisonous and non-injurious!* This is most important in view of the Miller Bill insecticide residue tolerances on food.

Pyrenone 606 is easy and economical to use. Just dilute with water and apply with ordinary spray equipment. For literature and prices see your supplier of Niagara agricultural chemicals, your Niagara field man or write us.

Niagara CHEMICAL DIVISION

FOOD MACHINERY AND CHEMICAL CORPORATION

Dept. 51-G, Middleport, New York

WHEN YOU BUY Niagara YOU BUY PROTECTION fmc *Trade Mark

Polak Fly Attractants

Three new fly attractants, to be used with pesticides such as malathion, have been developed by Polak's Frutal Works, Inc., Middletown, N. Y.

One of the attractants reportedly contains odor components found in certain fruits and flowers attractive to flies. According to the company, this compound can also be used as a masking agent.

Of the other two compounds, one simulates fermenting and decaying food products and the other reproduces the odor of a horse stable.

Fritzsche Deodorizer

A new masking agent for putrefaction odor control has been put on the market by Fritzsche Brothers, Inc., of New York City. Called Putrol, the product is said to be especially effective for controlling decomposition odors produced by protein materials. The manufacturers recommend Putrol for use around city dumps, sewage disposal plants, zoos, and kennels.

For further details contact Fritzsche at 76 Ninth Ave., New York City.

Penn Solvents Bulletin

Penn-Drake white oils, petrolatums and odorless solvents are detailed in a new 4-page technical bulletin published by Pennsylvania Refining Company. Included are specifications and suggested applications for the various products, as well as details on the company's custom refining service.

Copies of this bulletin, No. 555, may be obtained by writing the firm at Butler, Penna.

Source for Cans

Round screw top cans with spouts, applicator brushes, daubers or shaker tops for use with liquids and powders is one of many types of containers manufactured by George D. Ellis & Sons, Inc. and described in a new two-color, four-page bulletin available from the firm at American & Luzerne Sts., Philadelphia 40, Penna. The company can supply over 75 different types of finished containers suitable for packaging insecticides and dusts.

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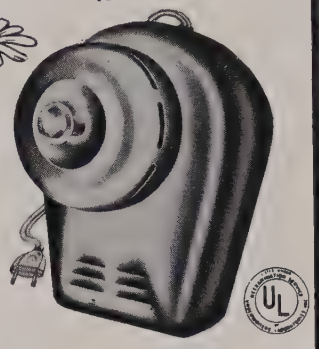
Scent-Flo

Makes air Fresh as a Daisy



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The SCENT-FLO ELECTRIC FAN-OPERATED AIR FRESHENER IS THE SALES LEADER IN THE FIELD TODAY—THE FIRST AND STILL THE FINEST DEODORIZER ON THE MARKET! Sanitary operators report bigger profits and more repeat sales based on greater customer acceptance and the MONEY BACK GUARANTEE of the manufacturer — the originator of the electric fan-operated deodorizer. WRITE TODAY for full details on FREE trial offer for yourself or one of your customers.

GLYCO-AIRE-WAFER REFILLS are absolutely longest lasting, most effective, LOWEST priced, fit ANY make electric deodorizer—assure satisfied customers and steady monthly sales and service. Free samples on request.

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PIGEON and STARLING CONTROL

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POSITIVE: It is a physical impossibility for birds to roost in the area where formula is applied.

ECONOMICAL: It eliminates needless expense in building maintenance, in keeping ledges, roofs, sills, etc., free from bird mess. One gallon is enough to bird-proof 150 running feet.

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CAN BE APPLIED TO ANY BUILDING, or electric sign. **Protects for a FULL YEAR** under most climatic conditions.

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1 - 4 lbs.	$13.00/lb.
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10 - 24 lbs.	$10.50/lb.
25 lbs. or more	$ 8.00/lb.

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The Sprayer That Every P.C.O. ***MUST HAVE!***

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IDICO STAR PISTOL TYPE SPRAYER

It is light . . . compact . . . with the easy hand grip and control — no dripping

PISTOL HAND GRIP . . . Trigger Operates High Pressure Hydraulic Piston . . . With Ease . . . No Heavy Pumping. Equipped with 1 quart brass bottom container. Large opening for easy and convenient filling.

INTERCHANGEABLE NOZZLES

1. Fine fog
2. Penetrating Pin Stream That Reaches 20 Feet or More.

AVAILABLE IN FOLLOWING MODELS

1. Straight Extension	B1	$10.25
2. Swivel Directional Extension	B3	10.50
3. Both Straight and Swivel Extensions	B4	10.75

• Can Be Used With All Type Liquids — Oils, Water, Emulsions, Deodorants, Moth Proofing Solutions, Etc.

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COPPER CONTAINERS are available with all models at $1.00 more each

WARRANTED TO GIVE LONG Uninterrupted Service and Use So Rush Your Order In TODAY!

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What's NEWS In The Industry

FHA Signs Research Agency To Study Termite Control

Federal Housing Administration has signed a contract with an independent research organization to conduct a survey which will determine the best means to repel termites and wood decay.

Just before press time, Charles A. Bowser, FHA Assistant Commissioner for Technical Standards told **Pest Control** the Building Research Advisory Board, which is a unit of the National Academy of Sciences, would conduct the investigation.

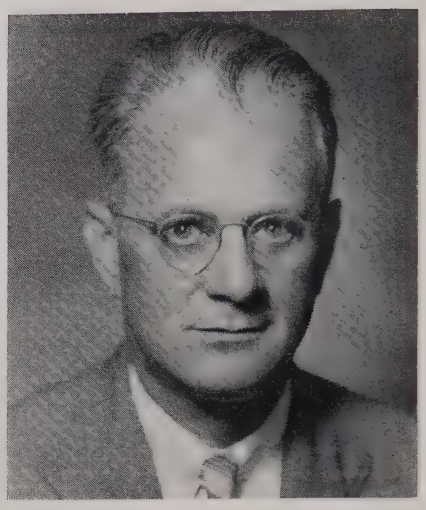
"This contract includes as its initial project a study which will indicate at its conclusion the recommendations of the most eminent authorities throughout the country, as to the best and most practicable means of protecting wood frame construction against decay and termites," Mr. Bowser said. "It is anticipated that the findings of the Building Research Advisory Board will prove to be of great value, not only to this Administration, but to the home building industry and to the American home owner."

Commissioner Bowser said he appreciated an opportunity to tell the readers of **Pest Control** of this new development in the FHA policy relating to soil poisoning as a means of termite control.

National Pest Control Association officers have been working with officials from the FHA, Veterans Administration, and Forest Service since last summer to come up with specifications for soil pre-treatment of slab homes during construction fair to both the government and termite control industry. Mr. Bowser explained his agency's views on soil-poisoning in the February '55 issue of **Pest Control**, page 9. For a list of termite chemicals recommended by the Forest Service see PC, March '55, page 34; and May '55, page 32; July '55, page 63.

Trullinger Retires from USDA

Dr. Robert W. Trullinger retired as Assistant Administrator for Experiment Stations, Agricultural Research Service, U. S. Department of Agriculture, on June 1st. Dr. E. C. Elting has been appointed acting Assistant Administrator.



Harold Noble (above) retired last month as vice president in charge of S. B. Penick and Company's Insecticide Division after 38 years with the firm. He is succeeded by **Frank Seeland.** Mr. Noble will continue as a member of the company's Board of Directors.

Suppliers' Staff Changes

Dr. Edward L. Chandler has joined the technical staff of Diamond Alkali Company's Chlorinated Products Division. He will be headquartered at Painesville, Ohio.

Stauffer Chemical Co. has added **R. F. Chenik, J. H. Knowlan,** and **W. E. Hoskinson** to the Midwest sales staff. All will work out of Chicago.

Miller Bill Effective July 22

Pesticide chemical amendment to the Federal Food, Drug, and Cosmetic Act (Miller Bill) is scheduled to become fully effective on July 22. However, the Secretary of Health, Education and Welfare may extend this date on a product-by-product basis, for a time not to exceed 12 months, on finding that conditions exist to necessitate the extension of such additional period.

After the amendment becomes fully effective, a raw agricultural commodity in interstate commerce may bear residues of a poisonous pesticide chemical only if: (1) under the provisions of the Federal Food, Drug, and Cosmetic Act a tolerance has been established for residues of the pesticide chemical, or it has been exempted from the requirement of a tolerance; and (2) if a tolerance has been established, the residues are within the tolerance level.

USDA Cites Seriousness Of Khapra Beetles

Khapra beetles have been found by control workers in warehouses 21 feet deep under solid masses of grain and crawling on bags of insecticides, U. S. Department of Agriculture investigators report. These insects also can work their way through a two-foot brick warehouse wall. Khapra beetle is the world's worst pest of stored grain in countries where it is well established. The beetle was eradicated from an infested California warehouse in an experimental fumigation test last January (PC, April '55, p. 22). This and other tests showed the effectiveness of the only practical method yet developed for eliminating this hard-to-kill insect from infested buildings. More than a million cubic feet of storage were wrapped in a gas-tight cover of sealed tarpaulins and given 2½ times the methyl-bromide dosage, and 12 times the exposure duration, normally required to kill exposed khapra beetles.

Some warehouses yet to be treated contain as much as 6 million cubic feet of space, with stacks or tanks rising as high as 135 feet. Such an extensive undertaking is justified, USDA and state oficials believe, if eradication can be accomplished.

Federal and state quarantines prohibit shipment of grain, grain products, seed-bags or other exposed materials from infested locations until they are thoroughly treated or found free of infestation. Under quarantine against the beetle, are 116 locations in California, 52 in Arizona, and 4 in New Mexico. It is expected that known infested warehouses in New Mexico will be cleaned up shortly.

A second survey of farm storage in suspected areas is now underway. Investigations by Agricultural Research Service pest control inspectors, in cooperation with state departments of agriculture, have been made in 3 states.

Agricultural Research Service's khapra beetle field control program is under the direction of Lamar J. Padget, with headquarters at Oakland, Calif.

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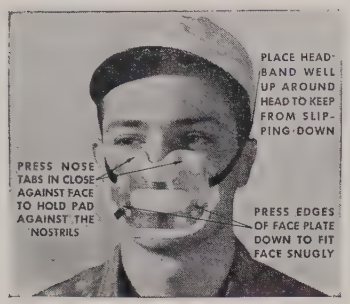
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Canadian PCOs Hold 13th Annual Conference May 25-27; Elect Ryder 1955-1956 President

Basic insect control techniques occupied the spotlight at this year's 13th annual Canadian Pest Control Operators' Conference held on the campus of Ontario Agricultural College, Guelph, Ontario, Canada, May 25-27. Talks on biology, damage, and control of silverfish, fleas, clover mites, hornets, wasps and ants brought the 58 attending operators up-to-date on latest control methods, while other experts covered such diverse subjects as safety, business practices, resistance, new chemicals and rodent control.

Fleas and their larvae seem to be susceptible to all the standard insecticides revealed Professor A. J. Musgrave of the college's entomology department. However, considerations of cost, practicality and health hazard will indicate or dictate which one should be used. Other control devices suggested by Professor Musgrave are (1) general cleanliness; (2) use of vacuum and other household and industrial cleaners; (3) proper care of pets; and (4) old fashioned remedies such as placing the pets' baskets out in zero weather, or using a rough fabric to attract fleas and then treating with insecticide to destroy them.

How to give home owners relief from clover mites when their premises are being overrun by these tiny invaders was one of the most often asked questions at the conference. OAC Professor H. W. Goble tackled this troublesome topic with the encouraging words that .5% malathion is giving consistently good control when applied at the rate of 40 gallons per 1000 square feet to all areas up to 25 feet from the infested house and to all house surfaces up to the level of the first floor windows. Other controls suggested by Professor Goble are oil base household sprays, aerosols containing pyrethrum, vacuum cleaners, and Aramite dust or spray.

An afternoon program of business procedures was scheduled at this year's conference for the first time. Professor J. J. Davis, Head of Purdue University's Entomology Department and chairman of the annual Purdue PCO Conference, was on hand to cover the intangible, but vitally important, field of PCO ethics.

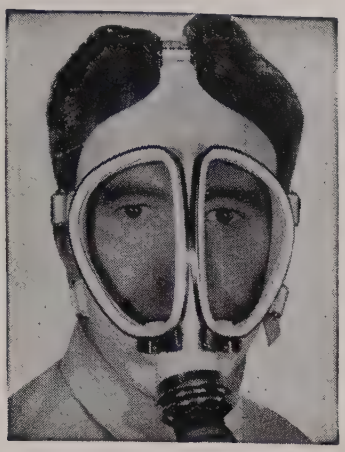
During the conference members of the Canadian Pest Control Assn. elected Ed Ryder, of Pest Control Technicians, Ltd., Hamilton, Ontario, president. He succeeds Charles Riess, of Charles Riess and Company, Winnipeg, Manitoba.

Other officers tapped to serve with Ryder are: vice presidents, W. O. Maheu, Maheu & Maheu, Quebec; J. J. Parent; and G. J. Spencer; secretary, D. W. Sanderson, Reliable Exterminators, Ltd., Toronto; treasurer, Harold Corbett; and directors, S. J. Emanuel; Jack Rudick, Western Exterminating Company, Montreal; I. Y. McNulty; and E. Edinger.

On hand to represent the National Pest Control Assn. were its president Harlem Ives, and executive secretary, Dr. Ralph E. Heal.

Professor R. H. Ozburn, head of the college's entomology department, was in charge.

Thirteenth annual Canadian PCO Conference was mixture of latest control information and business techniques. **Dr. Ralph Heal, Harlem Ives, Prof. J. J. Davis,** (in front row) **Jack Benmosche,** came up from the States for this valuable three-day meeting held May 25-27 at Guelph.



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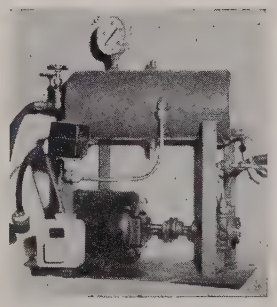

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Notebook

TIPS AND IDEAS FROM THE FIELD

Foil Follies

By Joseph R. Gross

Here you see a black and white photo of damage to aluminum foil. Aluminum foil has become a household necessity; nearly every home and every restaurant uses it for many kitchen purposes. Most common use that I know of is to cover dishes of left-over food for protection in the refrigerator.

One of my better accounts called me in a few months ago because he was on the spot with the Health Department. So we had a conference. It seems that the inspector had found several times dishes of food covered with foil showing characteristic perforations in picture. The food—roast beef, chicken and turkey dressing, etc.,—had been stored in pans covered with aluminum foil.

"Roaches," the inspector said. I went over that ancient freezer with a fine-tooth comb. "No roaches," said I. Corrosion was my guess. In every spot where the holes showed up, the foil had been in continuous contact with food in the container.

Aluminum foil strip shows holes caused by corrosion rather than by roach gnawing.

Micro-battery effects or roaches? That is the question. My problem is how to determine if under certain conditions a tiny electrical current is set up where the aluminum foil touches the food. The holes do very closely resemble roach chewings. Acid or electrical corrosion might be the answer.

Whatever the cause, how can the result be proved as something other than roach damage? Another question was also asked of me. "Is the food ruined or even poisonous where this condition exists?" And then there is the question, "Will roaches chew through this foil to get at the food?"

One of these days I may set up some little amateur tests to try for the answers.

Pest Control set its research facilities to work to see if we couldn't find the answers to these questions. We went direct to one of the largest manufacturers of aluminum foil and feel their reply explains what happened in this instance and proves no roaches were involved.

Certain chemicals do cause corrosion of aluminum foil that looks like roach damage. Combinations of those chemicals in mayonnaise, citrus juices, old tomatoes, vinegar-based foods, some forms of salt, pickles, mustard, cider, apple juice, Cognac, brandy, etc. have this reaction on foil. It is not possible to make a general statement as to which foods act this way, for the chemical state of those foods is the important factor to consider.

According to this reliable manufacturer of aluminum foil, which asks that we do not mention its name, no ruinous or poisonous effects can result from this corro-

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ODOR—Has a very faint pleasing odor which quickly disappears after application.

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sion to aluminum foil since aluminum as such is non-toxic. The manufacturer says the only effect that can result is from the decaying of food exposed to air.

Finally, we are told roaches, other insects, and rodents will eat into aluminum foil of the thinness used in homes. It was suggested a heavier gage foil, such as 001, might prevent this where there is any danger of such infestation from insects or rodents.

NPCA Drafts Insect Name List

National Pest Control Association technical staff has compiled a list of the common and scientific names of insects and other arthropod pests commonly encountered as one of its latest technical release mailings to members.

Much confusion can occur when different names are used by pest control operators to identify a single pest or if two persons, discussing a problem in insect control, use a single name but are thinking of different species. This list was prepared to eliminate such confusion and to serve as a standard reference.

While common insect names are generally more useful in dealing with the public, the NPCA feels PCOs may want to use the scientific name of a pest when corresponding with entomologists or in reviewing technical literature.

The list is drafted in such a way that the person using it can find the insect's common name by referring to the scientific name or vice versa.

Supplemental Data On FHA Termite Soil Poisons Specs

(Additional letter to the editor)

Reference is made to an article, "Forest Service Issues Specs for Soil Poisoning Chemicals" in **Pest Control's** May issue.

This information on soil poisons for control of subterranean termites was prepared for the information of Federal Housing Administration. Additional explanatory material is needed. The omission of certain other insecticides used in termite control has caused some confusion and concern in the industry.

In order to prevent further misunderstanding or possible misuse of these data we feel that additional information concerning them should be published in an early issue of **Pest Control**:

1. The chemicals recommended consist only of those which the Forest Service has had under test for at least 5 years and which have given complete protection from termites for the entire 5-year period.

2. Proprietary materials were not included in the Forest Service tests which served as a basis for the recommendations.

3. As further information becomes available it is probable that additional chemicals and materials will be included in the list of recommendations to Federal Housing Administration for use in protecting new construction against termites.

Your cooperation in further explaining this matter to your readers will be appreciated.

James A. Beal

Chief, Division of Forest Insect Research
Forest Service
U. S. Department of Agriculture
Washington, D. C.

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Equipment Care & Maintenance
(from page 30)

reassembled and placed in a clean, dust-tight container.

Maintenance: When necessary to replace worn or deteriorated parts, only those made specifically for the device should be used and the repair should be made by experienced personnel. Make repairs routinely after cleaning and sanitizing. Repairs to intricate parts should be referred to the manufacturer.

Storage: All respiratory protective equipment should be stored in clean, dry places under conditions of moderate temperatures. Most devices of this type are packed in reusable cartons or cases and should be kept in the containers during periods of storage. Exposure to heat, sunlight, extreme cold, and excessive moisture for extended periods may well prove harmful.

Gas mask canisters should be stored in a cool, clean, dry location and stock rotated so that no canister remains in storage before use for more than four years.

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THEM TO DEATH—

—isn't the way an alert P.C.O. handles his fumigation jobs—and, compared to heated Methyl Bromide, the older methods of space fumigation are almost as inefficient as stomping pests to death! Heated Methyl Bromide requires no time to vaporize—the fumes go into action right away, penetrate faster and deeper! Effective lethal concentration is reached immediately, and maintained longer. There is no possibility of a 'half-kill,' with its necessity for time and profit-gobbling re-works!

The heating unit pictured at the left, Black J's Model "A" has been developed through the refinement of several prototype designs. Light, strong, compact, and easily-portable, —it weighs only 144 lbs., fully-loaded— this is the first Methyl Bromide heater which doesn't have to be assembled on the job. It can be carried to the job filled with fuel and water, lifted off your truck and, within minutes, be vaporizing the output of two tanks of Methyl Bromide simultaneously.

The "Pestmaster" Methyl Bromide shown with this heater is a product of Michigan Chemical Corporation, St. Louis, Michigan

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Booklet Sells Rat Control

"Conquer Filth to Assure Cleaner Food" is the title of a new, two-color attractive eight-page brochure being offered by the Wisconsin Alumni Research Foundation, Chicago, to promote control of rats.

Artfully prepared with liberal use of photographs and drawings depicting the ins and outs of rodent control to protect consumer food, the booklet is authored by Walter W. Dykstra and John C. Jones, both of the U. S. Fish & Wildlife Service. Text is similar to that presented by Mr. Dykstra in his July 1954 Pest Control article, Rodent Filth in Food, page 9.

Limited numbers of copies are available to PCOs who wish to use this promotion piece in their sales work.

Calendar

New Mexico Pest Control Assn. Monthly Meeting, 1125 Cerillos Road, Santa Fe, July 16.

Assn. of Master Pest Control Operators of Dayton Monthly Meeting, Dayton, Ohio, July 27.

Ohio Pesticide Institute Meeting, Wooster, Ohio, Aug. 9-11.

Indiana Pest Control Operators Assn. Meeting, (place to be announced) Aug. 10.

Virginia State Pest Control Assn. Meeting, Virginia Beach, Aug. 19-20.

National Assn. of Sanitarians 19th Annual Educational Conference, Sheraton Plaza Hotel, Boston, Mass., Aug. 22-26.

Arkansas PCO Licensing Examinations, State Plant Board, Little Rock, Sept. 6.

National Agricultural Chemicals Assn. Annual Meeting, Spring Lake, N. J., Sept. 7-9.

Iowa Pest Control Assn., Inc., Meeting, Blackhawk Hotel, Davenport, Sept. 22-23.

Baking Industry Exposition, Convention Hall, Atlantic City, N. J., Oct. 1-6.

National Pest Control Assn. Convention, Cosmopolitan Hotel, Denver, Colo., Oct. 16-20.

American Public Health Assn. 83rd Annual Meeting, Municipal Auditorium, Kansas City, Mo., Nov. 14-18.

Entomological Society of America Annual Meeting, Netherlands Plaza Hotel, Cincinnati, Nov. 28-Dec. 1.

Chemical Specialties Manufacturers Assn. 42nd Annual Meeting, Roosevelt Hotel, New York City, Dec. 5-7.

Weed Society of America Meeting, Hotel New Yorker, New York City, Jan. 4-6.

North Carolina Pesticide School, Raleigh, Jan. 10-11.

Infestation Report

Contains pertinent portions of the Department of Agriculture's **Cooperative Economic Insect Report**, material from university entomology departments, and reports from readers. PCOs noticing infestations in their own areas are urged to communicate with **Pest Control** so their information may be added to this infestation report.

A BAT BUG
(Cimex adjunctus)

Rhode Island: Heavy infestation in a building in South Kingstown.

A BLACK FLY
(Simulium venustum)

North Dakota: Abundant locally in Fargo, 17 collected in 20 minutes. Three weeks earlier than last reported invasion in 1950. Larval concentrations in swift moving streams of the Red River Valley more abundant than during the last 5 years.

AMERICAN DOG TICK
(Dermacentor variabilis)

Rhode Island: Continues numerous over state. **Maryland:** Infestations of ticks; fever cases reported, Bethesda, Montgomery County. Also in Prince Georges and Frederick Counties. **Delaware:** Adults common along roadside and in wooded areas throughout state.

CLOVER MITE
(Bryobia praetiosa)

Kansas: Infestation in houses continues to be reported from most areas of the state. **Minnesota:** Large numbers in many dwellings. **Idaho:** Reports of nuisance in homes less than in past two years. **Washington:** Very annoying around dwellings, however, good control obtained. **Montana:** Some inquiries, but much less abundant than last year. **Rhode Island:** Heavy population throughout state invading houses.

HORN FLY
(Siphona irritans)

Texas: Medium local infestation on cows and horses in Harrison County. **Kansas:** Populations in southeast area average about 60 per unsprayed dairy animal and from 40-60 per range animal. **Louisiana:** Increasing on cattle East Baton Rouge Parish. **Nebraska:** Occurring over state. **New Mexico:** Have appeared on cattle in southern half of state. Counts of 25-50 per cow in Dona Ana County. **Pennsylvania:** Very abundant on beef animals in field in Fulton County.

HOUSE FLIES

South Carolina: Some increase in widely-scattered areas. **Arizona:** Building up in Yuma area. Becoming household nuisance. **Nebraska:** Emerging for several days. Should build up rapidly with favorable conditions.

MEALWORMS

Georgia: Unusually abundant in bins in which seed corn has been stored at Fort Valley.

MITES

Ohio: Operating room of city hospital at Piqua suddenly found swarming with bird mites attributed to pigeons roosting on roof and ledges.

MOSQUITOES

Utah: Larvae required control in Weber County. Moderate number in alfalfa in Duchesne, Unitah, Summit and Morgan Counties. **Minnesota:** Emergence about complete. Breeding exceptionally heavy, but species pestiferous only in wooded areas. **Florida:** Have been a nuisance to man, horses, and cattle.

RATS

Minnesota: Severe infestation of sewer rats in St. Paul. **Illinois:** Moderate infestation on city dump in La Grange Park.

STABLE FLY
(Stomoxys calcitrans)

Oklahoma: Average 4-8 per animal in north central area. **Louisiana:** Average 8-12 per head on 72 cattle in East Baton Rouge Parish.

TERMITES

Indiana: Based on records of swarmers, termites unusually active throughout state.

WHARF BORER
(Nacerda melanura)

Delaware: Adults prevalent in house near Wilmington.

Black Widow Bite Unlikely

Statisticians estimate the chance of being bitten by the black widow spider or dying from the bite are even less than those of being struck by lightning.

LARVACIDE'S THREE WAY Service

is UNIQUE for control of these unwelcome guests

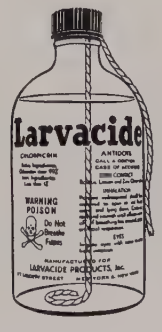
1. **SPACE — Your fumigation with liquid LARVACIDE brings 'em out of retreats to die on the open floor without carcass nuisance.**

   AEROSOL Larvacide does the same job as liquid, but is applied by simply opening a valve. Gas spreads quickly, penetrating retreats — takes less time to fumigate — less time to aerate. Often applied from outside by Larvasoler C.

2. **BURROWS — Light dosage kills the rats and traces of the gas linger to effectively discourage rehabitation. The unused burrows usually fall in before newcomers arrive.**

3. **—AS REPELLENT INDOORS** — Insert soft string into LARVACIDE bottle, letting part hang outside as wick. Use one bottle for each 500-800 square feet of space.
   Read the gist of this report by Melvin Laboratories, Memphis, Tenn. on their experience with the LARVACIDE Wick Bottle method in a large Southern rice mill:

   During December when rats drive indoors for food, by placing bottles at strategic points in warehouse of 4,000 square feet, the building was kept practically free of rodent entry . . . at a cost of approximately $12.



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BROADWAY
RUBBER CORPORATION
Louisville 2, Kentucky

Colonizing Termites
(from page 50)

them? Or do they migrate and form new colonies?

Possibly the normal habit is for these supplementary reproductives to migrate with workers and soldiers through subterranean passages and establish new colonies. They may be impelled to leave the parent colony by the same stimuli as the winged adults.

Sometimes brachypterous reproductive forms of both sexes engage in a short false flight or attempt at flight. They come out of the colony at the same time as the winged adults are swarming. They run about in the full sunlight and climb to slight elevations and makes light, short jumps or flips into the air. Is this a manifestation of, or a reversion to, the ancestral habit of swarming?

At any rate, it is very important to determine how these supplementary reproductives establish new colonies.

Primer

LOOK ALIKES: 7

Prepared by DR. MARION E. SMITH and HSIU-FU CHAO
Entomology Department, University of Massachusetts, Amherst

Granary Weevil and Rice Weevil

Physical differences between insects that look alike are often hard to determine. This is the seventh in a series of illustrated columns describing characteristics of insects that closely resemble one another. This month the authors tell how to correctly identify the granary and rice weevils. In June, silverfish, firebrat, and four-lined silverfish were covered. Don't throw these columns away; they may solve an infestation problem.

GRANARY WEEVIL
Sitophilus granarius

RICE WEEVIL
Sitophilus oryzae

Color	
Deep brown or black.	Lighter brown, with two vague yellowish or reddish spots on each wing.
Markings	
Coarse lengthwise punctures on thorax.	Finer, rounded punctures on thorax.
Flight	
Cannot fly - has undeveloped hind wings.	Has well developed wings and can fly.
Food	
Grain in field and in storage — wheat and corn kernels, rice, macaroni, noodles; seeds and nuts. Feeds on flour but cannot breed.	Grain in field and in storage — rice, meal, flour, biscuits; beans and nuts.

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Hopkins Malathion

Get set for fly control problems. USE . . .
HOPKINS MALATHION

Your head needn't be buzzing with flies like our friend's. Use HOPKINS MALATHION, "One of the safest insecticides to handle." It's safe for you but deadly to flies, EVEN FLIES RESISTANT TO DDT—LINDANE — METHOXYCHLOR. When used as a sugar-bait spray, you get good, residual control for up to 30 days. Malathion is also one of the most effective Clover Mite controls. Available also as a 25% wettable powder.

HOPKINS DIELDRIN

USDA has accepted the use of **DIELDRIN** for control of household pests inside the home. It's the new sure way to control carpet beetles, brown dog ticks, roaches, ants, silverfish, paper nest wasps, and mud daubers.

USE HOPKINS DIELDRIN FOR RESIDUAL HOUSEHOLD PEST CONTROL

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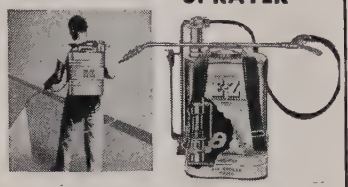
Complete line of hand, continuous, compressed air, knapsack, bucket, wheelbarrow and barrel sprayers and insecticide dusters. Many styles of spray nozzles. Quality design and performance.

Streamlined BLIZZARD Copper Continuous Sprayer

World's Finest
Two Sizes: Pint, Quart (39 ounces)

Solid copper tank. Seamless, highly polished brass pump barrel. Beautiful design. Sturdy construction. Lasts for years. Double nozzle sprays fine, powerful mist straight ahead or at any angle.

E-Z 5 GAL. KNAPSACK SPRAYER



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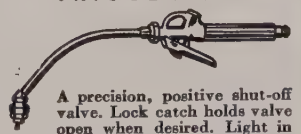

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One of New York's largest and oldest exterminating companies has opening for live-wire salesman. Immediate drawings against liberal commissions. Outstanding opportunity for right man. Submit complete resume. Box 375 Pest Control magazine.

POSITIONS AVAILABLE

World's largest pest control firm, operating in 27 states, needs several high-caliber men for responsible positions. Unlimited opportunities for ambitious, aggressive young men. Liberal salary and incentive arrangements. Employee benefits include paid vacations, sick leave, life insurance, hospitalization and pension plan. Experience in professions related to pest control helpful though not essential. Training programs for future managers and other supervisory positions open to college graduates, also several openings for service personnel. Replies confidential. Contact Technical Department, Orkin Exterminating Company, Inc., 713 W. Peachtree St., N.E., Atlanta, Georgia.

Would you try to land on a building protected by Nixalite? **120 sabres** pointed at you in every foot! Strong, durable and dependable for effective service. Special fasteners included.

Write for 32 page illustrated Know How Manual

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115-119 W. 3rd Street, Davenport, Iowa, U.S.A.

POSITION AVAILABLE

Man experienced in pest control. Must have proven record in service and service sales. This rapidly growing corporation in Midwest has employee stock ownership, profit sharing, paid vacations, retirement, and sickness-accident insurance paid by the company. Guaranteed income plus personal commissions. Reply giving full details. The employees know of this ad. Box 377 Pest Control magazine.

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Young entomologist with practical experience in pest control and termite operations for substantial company in Latin America, in modern city with delightful climate. Prefer single man capable of developing into general manager in two or three years by learning Spanish. Owner reaching sixty years of age and wishes to retire. Compensation to start at least $4,000, or more per year over and above living expenses. Transportation paid for vacations in U.S. Owner will be in U.S. September or October for interviews. Unusual opportunity for right man. Write fully to Box 374 Pest Control magazine.

POSITION AVAILABLE

Experienced serviceman with salesmanship and managerial capabilities for general pest control in Pennsylvania, Ohio, Kentucky and W. Va. Must have good background, be honest and responsible. All replies confidential. Write R. D. Erdie, Ace Exterminators, Inc., Watson Hotel Bldg., Fairmont, W. Va.

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Man experienced in pest control sales supervision. Must have proven record in managing sales - servicemen and outstanding personal sales. This rapidly growing corporation in Midwest has employee stock ownership, profit sharing, retirement and sickness-accident insurance paid by the company. Guaranteed income plus personal commission and override. Paid vacations. Reply giving full details. The employees know of this ad and they demand a man who can produce in sales and increase profits. Box 378 Pest Control magazine.

FOR SALE

Well established pest control route. Locations in seven counties. Ideal for termite work along with route. No equipment to buy. Bill Hartman, Cuero, Texas.

FOR SALE

Old established pest control business in Midwest. Doing good business. Owner retiring. Box 376 Pest Control magazine.

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5 LB. AEROSOL Wonder Bombs
Will treat over 1,000,000 cubic feet
LIST PRICE **$14.50**

Add $3.75 refundable deposit on each cylinder to the above price. All cylinders of 2 dozen or more can be returned at our expense. All orders of 2 doz. or more shipped prepaid.

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PYRETHRINS, PIPERONYL BUTOXIDE. New, non-toxic, safe, and simple to use. Contains 50% Pyrethrins and 4% Piperonyl Butoxide for control of flies, mosquitoes, bedbugs, roaches, carpet beetles, moths, gnats, ants and all other household insects.

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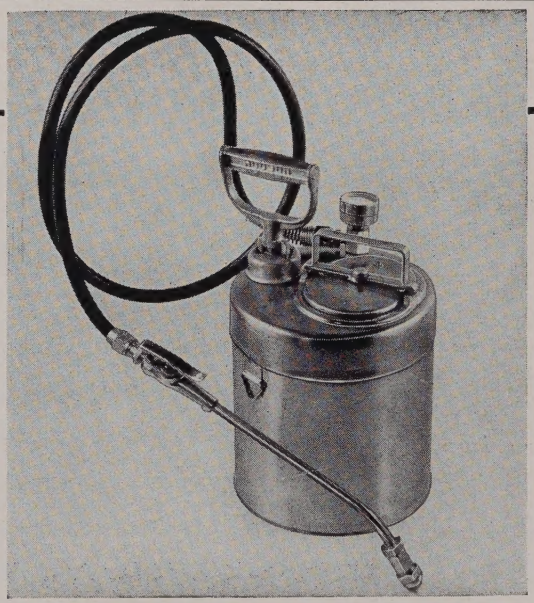

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1 GALLON UNIT offered for the first time
Exclusive with PCE

A 1-gallon job that is frankly the best value we have ever offered in a sprayer.

And, if you already own a PCE tank-type sprayer, you'll be glad to know that spare parts are interchangeable with other stainless steel tank-type sprayers in the PCE line.

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WITHOUT GAUGE **$24.50**

as shown plus coupler at tank end of hose **$30.00**

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Pestales

Cautious Caller: "Good afternoon, madam," said the nattily dressed stranger to a woman answering the doorbell of a boarding house. "Would you be interested in buying some powder that kills flies, fleas, bed bugs, roaches mosquitoes, and moths?" "Why certainly not," replied the lady indignantly, "They're no insects in my home." "Good," exclaimed the pseudo-salesman, "I'll take that room you have advertised for rent." . . . Thanks to the Shell Chemical Company's "Scan" Ag. Chem. News letter for the above tickler.

* * *

Buttermilk for the president. *Ulcers aint fun for nobody, but Canadian PCOs got their kicks keeping NPCA prexy, Harlem Ives well supplied with buttermilk during the recent Dominion PCO meet. A better diet, we'd say, than some grog you might pick up in the Maple Leaf Bar & Grill, or Joe's Place.*

* * *

Lend Lease: What some people won't do for money! The Zoo in Lucknow, India is planning to rent pet snakes to householders with a rat problem. Idea is the reptiles will keep the buyer's premises clean by making a full course dinner of offending rodents . . . We can't share the zoo's confidence in who'd win out in a showdown between brother rat and pet snake.

* * *

Texas PCA Scholarship. *Add another association to the list of groups sponsoring collegiate entomology scholarships. Tom E. Bonorden, of Port Lavaca, is the Junior at Texas A & M who's the lucky '55 Texas Pest Control Association grant winner. Funds come from registrations at their PCO short course. Such fees thus do double-duty. Good idea!*

* * *

Baer Bottom: Bob Loibl, of Pest Control Products in Los Angeles, still has a buzzing in his ear from a flighty telephone conversation he had with a prospective customer the other day. Fellow called Bob up and flatly stated, "My name is Mr. Baer and I'm having a lot of trouble with bees. One just bit me on my bottom which finally made me get up off it to call you in."

* * *

Slips that almost passed. *Up-state Illinois PCOs were surprised to read in their morning papers, legislators in their state capitol had introduced a bill to regulate persons engaged in the pest control business. Northerners knew no such thing was brewing. Enough to make the unsuspecting spew out his coffee and orange juice.*

* * *

What could be more appropriate? *PCO Bob Williams of Evansville, Indiana is new president of his local City-County Advisory Health Council. He's delegate from the Evansville Chamber of Commerce. Dandy public relations boost for Bob.*

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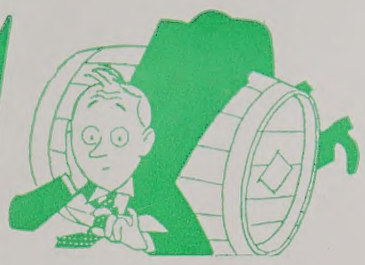

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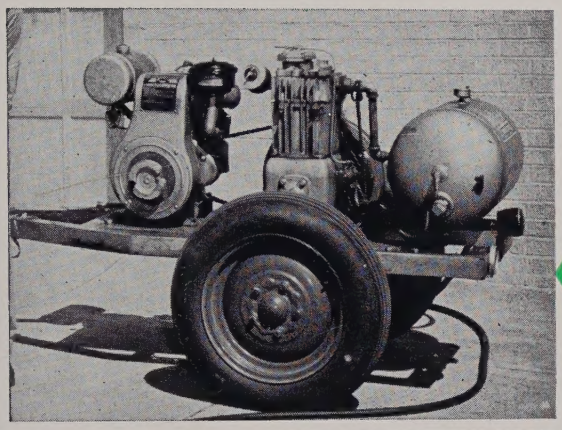

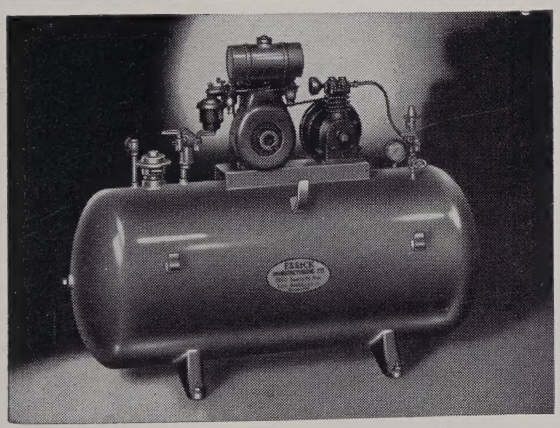

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CUT THAT BIG JOB DOWN TO YOUR SIZE

Let the Electric Residual Applicator do your pumping! Let it maintain constant pressures for you! Let it carry your insecticide through 100 feet or more of hose to the spot where you need it!

No compressor or compression tank needed. Draw insecticide or soil poisons from any size container. Simple to operate, easy to set up on the job. Handles both oil solutions and water emulsions.

Series B No. 1½ — Complete as pictured. The pump is rated at 2 gallons per minute at zero p. s. i. The motor is 1/3 h. p. Total hose, 112 feet, inside diameter ¼". Pressures up to 150 p. s. i., regulated by hand wheel adjustment. Large-screen suction strainer. Pressure gauge. Quick coupling hose connectors. Shut-off valve, three different capacity nozzles, 18" extension wand, motor-mounted electric toggle switch, 6' neoprene cord with armored plug, renewable hose end adapters, all brass nipples, bushings, cross fittings and elbows.

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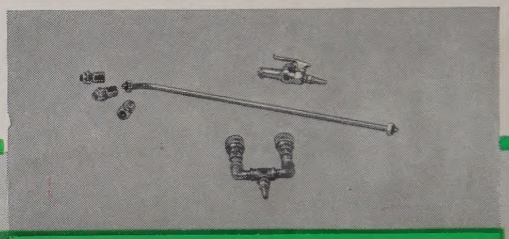
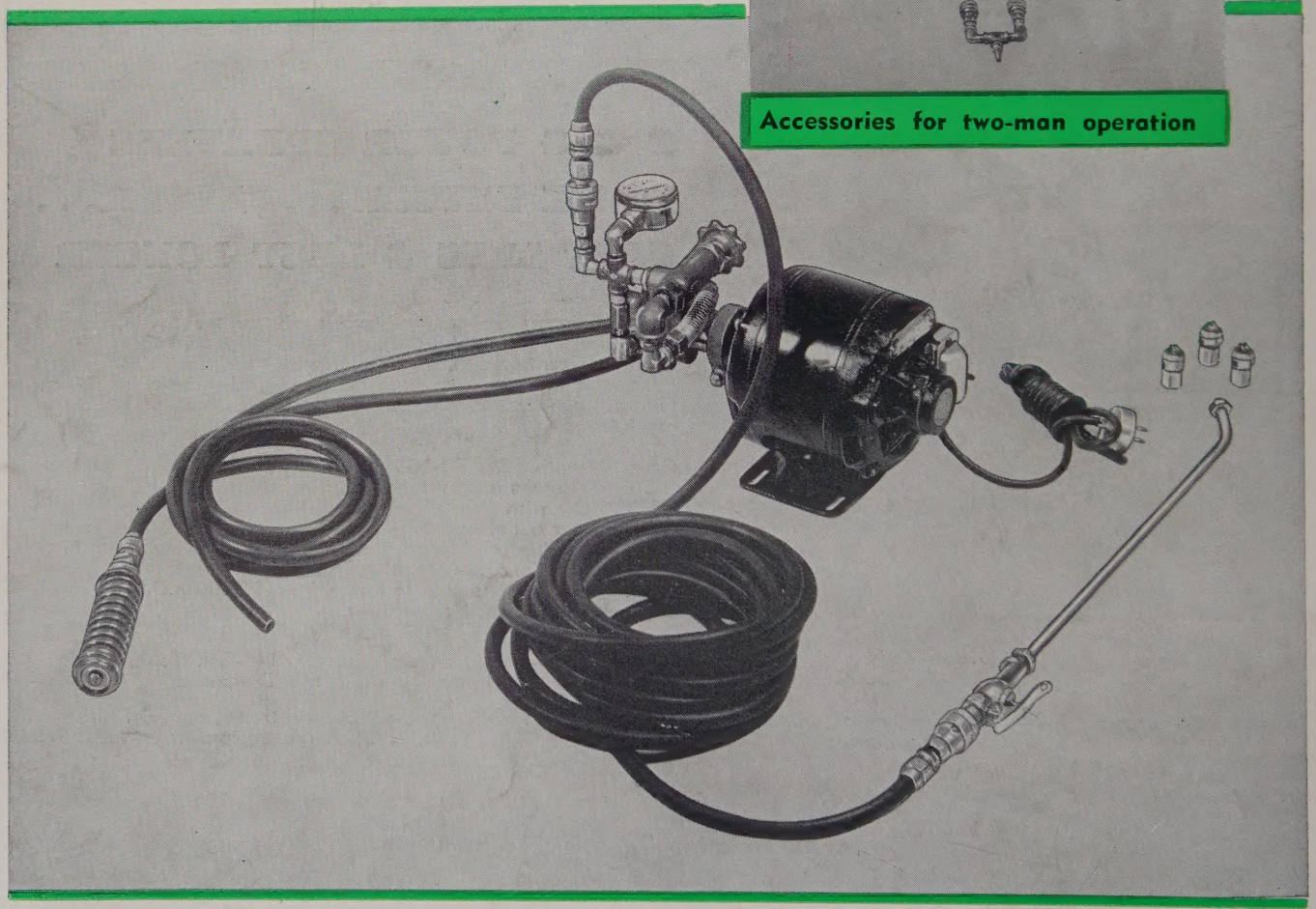
Fittings for two-man operation, Series B No. 1½ (as pictured).

Series B No. 2 — For the termite operator who wants larger pump, hose, fittings, etc. Write for detailed specifications and price.



Accessories for two-man operation



Series B No. 1½

Write for Catalog

PEST CONTROL EQUIPMENT COMPANY

24 North Bond Street MO-8-1197 Mount Vernon, N. Y.

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